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LECTURES
ON
MEDICAL JURISPRUDENCE,
NOW IN COURSE OF DELIVERY,
AT THE
UNIVERSITY OF LONDON.
BY PROFESSOR A. T. THOMSON.

LECTURE XLI.

SALTS OF COPPER (*concluded*):—*Time of the fatal issue in poisoning with them. Their absorption. Cuprous poisoning with pickled samphire. Post-mortem appearances in poisoning with the salts of copper. Chemical evidence. Salt of copper in bread. Treatment in poisoning by salts of copper. Their admixture with food.*—ANTIMONIAL SALTS. *Poisoning therewith. Impunity of large doses. Tartar emetic. Glass of antimony. Chemical evidence of poisoning with antimony. Treatment. Butter of antimony.*—NITRATE AND CYANIDE OF SILVER. *Poisoning therewith. Dissection.*—TRISNITRATE OF BISMUTH.—(*Bicyanide of mercury. Chemical evidence of poisoning with the bicyanide.*)

SALTS OF COPPER.

GENTLEMEN:—When the poison of salts of copper proves fatal, which rarely occurs, even if the dose be very large, the death of the person seldom happens until the second or third day after the poison has been taken. PYL mentions a case of a confectioner's daughter, who took two ounces of verdigris, and died on the third day. When the dose is large, however, the fatal issue may be very prompt, and this is generally the case when the poison is given in large doses to the lower animals; and in such cases the poison seems to operate solely by its topical influence. If we are to judge from the influence of the salts of copper applied to the cellular tissue in dogs, we may reasonably doubt whether absorption ever takes place. It develops merely a very severe phlegmonous ulcer, and no secondary or constitutional symptoms have been observed. It is, nevertheless, stated by ORFILA, that sulphate of copper is absorbed, but the experience of other medical jurists has not confirmed this assertion.

One of the most interesting cases of cuprous poisoning with which I am acquainted is detailed in Dr. PERCIVAL's Essays. The subject was a lady, the poisonous ingredients were pickled samphire. She died on the ninth day. As the case is short and instructive I will read it to you:—

"On Monday, August 25, 1783, a young lady, seventeen years of age, amused herself, whilst under the hands of the hairdresser, with eating pickled samphire, of which she consumed two breakfast-platefuls, about three or four ounces. Being very thirsty soon afterwards, she drank about the fifth part of a pint of vinegar. In the evening she complained of a pain in the stomach, and perceived a rash upon her hands and breast. She went to bed early, felt indisposed, and slept little during the night. The rash almost disappeared before Tuesday noon. She was troubled at times with shooting pains over the whole body, but particularly on the right side; and was dejected, restless, and very thirsty. On Wednesday the pain and thirst continued; she expressed a longing for acids, and was much troubled with flatulence. Her pulse was frequent and small. Her tongue was covered with a white fur, and she passed several days without a stool. During the operation of laxative mixture, the pain removed from the right side to the left, and she felt a great and universal soreness. On Thursday the symptoms continued without abatement. The succeeding day the pain returned with exceeding violence; in the evening, however, it was alleviated, and afterwards returned with much severity. On Saturday morning sickness came on; she vomited at intervals during the day, and a hiccough usually preceded her retchings. The retchings were incessant. On Sunday morning a quantity of samphire was thrown up, and the discharges were of a green colour, and very offensive, and tasted

like copper to the patient. The hiccough was frequent, and always occasioned vomiting. Such had been the progressive effects of the poison, according to the information of her intelligent apothecary (Mr. BILL), when I was called to her assistance, in consultation with an ingenious physician (Dr. MITCHELL) of this town. She had neglected to solicit any medical aid till Wednesday, and then, imprudently concealed the cause of her complaints. Remedies, however, well adapted to the apparent indications of the case, had been assiduously administered, and some of them seemed to afford considerable relief. When I first saw her the discharges by stool and vomiting were extremely offensive. The latter were of a dusky-green colour, acid to the patient's taste, though not perceptibly so to the nostrils of the bystanders. The stomach was enormously distended with wind, and tender to the touch; the hiccoughings were almost incessant, and the pulse was quick, tremulous, and irregular. Small doses of calcined magnesia were given at intervals, in a pleasant emulsion of poppy-seeds, with a few drops of laudanum. A truce to the pains, vomiting, and hiccough succeeded, but the remission was fallacious; in twenty-four hours the vomiting recurred, with great inquietude; the extremities became cold, the pulse weak and fluttering, the countenance ghastly, and she expired early on Wednesday morning, September 3. Her body was opened on the same day, by Mr. BILL, and I was present, together with my son, at the dissection. We found about a quart of brown fœtid liquor in the stomach. The internal coat of that organ was inflamed and gangrenous, particularly about the cardia and pylorus, and the appearance extended itself some way down the duodenum. The liver was sound, and it was not thought necessary to prosecute the examination any farther. As the samphire was fresh, without anything peculiar in its flavour, and had been eaten by all the family with impunity, I was, at first, inclined to suppose that the injury done by it arose principally from its quantity, as a solid acid, and the consequent degree of irritation on the coats of the stomach. But, though this probably contributed deleterious effects, I found by the usual chemical tests, that the pickle was very strongly impregnated with copper, and to this cause the fatal catastrophe must be chiefly ascribed."

In the post-mortem examination of the body of a person poisoned by salts of copper, the following are the most obvious appearances:—

The surface appears yellow, as if the person had died of jaundice. This always appears after death, even when no yellowness has displayed itself during life. The gullet is often found constricted, and containing verdigris. The lungs are inflamed, and the blood in the pulmonary vessels is black and fluid, although it is sometimes coagulated. The mucous membrane of the alimentary canal exhibits, in various spots, a greenish hue, a characteristic demonstration of poisoning by salts of copper. Inflammation, and even ulceration and gangrene, occupy it also, in detached spots, both in the stomach and the alimentary canal. The smaller intestines are more affected than the larger, and sometimes perforated.

But these appearances, although affording strong suspicion that the death has resulted from poisoning by the salts of copper, yet require the confirmation of chemical evidence.

Chemical Evidence.

In the examination requisite for this purpose we are to obtain, if possible,

1. The poison as it was exhibited.
2. The matters vomited.
3. The contents of the stomach.
4. The parts of the mucous tissue marked or ulcerated by the poison.

If none of the poison, in substance, or in simple aqueous infusion, be found, we must look for it in other substances, or in the vomited matters, or in the stomach itself.

1. If the sulphate of copper, for example, or verdigris, have been given in wine, we shall find the remains of the draught, if some hours elapse, as black as ink, and a brownish deposit in it, more or less, according to the colour of the wine, this deposit consisting chiefly of the colouring matter of that fluid.

In examining the fluid part, we must decolour the wine with animal charcoal, then dilute with water, and treat the fluid in the same manner as a simple solution of a salt of copper. In examining the deposit, we must first act upon it with nitric acid, then dilute with water, and test the solution as we have done the fluid part.

2. If verdigris have been administered in milk, the fluid is tinged blue, and a coagulum is formed. In our examination in this case we must pass a stream of chlorine through the milk, until the coagulation is complete; then filter, and having boiled the fluid, to drive off the excess of chlorine, it must be tested with ferrocyanate of potassa and ammonia.

3. If the poison have been administered in broth, the same plan must be adopted.

4. If we have only the vomited matters, or the contents of the stomach, to act upon, we must first carefully separate the fluid from the solid matter; then pass a stream of chlorine through the former; filter, evaporate to one half, and test with sulphuretted hydrogen in solution, and ferrocyanate of potassa. If no satisfactory result be obtained, we are then to evaporate the fluid to dryness; and, having incinerated the residue, it must be

submitted to the action of nitric acid, to dissolve out the copper. The nitrate thus obtained must then be tested with the usual reagents.

Another method is to boil the vomited matters, or the contents of the stomach, with acetic acid, or distilled vinegar: then pass through the fluid, separated by filtering, a stream of sulphuretted hydrogen gas, which will throw down, if a salt of copper be present, either a pale or a dark brown precipitate. This is to be washed, dried, and incinerated on a piece of platinum foil, or a watch glass, to destroy the vegetable or animal matter. The sulphuret thus obtained is to be converted into a sulphate by adding a few drops of nitric acid, and heating the mixture. It is then to be dissolved in distilled water, and the solution tested with ammonia and ferrocyanate of potassa.

5. But the salt of copper may have been changed in the stomach into a salt insoluble in acetic acid. In this case we are to char the whole of the solid matter, and, having acted upon it with diluted nitric acid, to test as if the fluid were a simple solution of a salt of copper.

6. If we have to examine the stomach itself, we must open it from the broad end to the pylorus, and spread it out upon a large flat dish. If you perceive any traces of a blue powder deposited on the mucous surface, separate it carefully with the point of a knife, and, having put it into a glass, wash it many times with pure distilled water slightly acidulated with hydrochloric acid: then pass a stream of chlorine through it, to coagulate the animal matter, and test the fluid with ammonia and solution of ferrocyanate of potassa.

If the poison have been verdigris, it is usually changed in the stomach into an insoluble sub-deuto-acetate. In this case the solid matter must be carefully dried, and divided into small portions, which should be thrown separately into a platinum crucible heated to redness, pressing down each piece, on introducing it, to the bottom of the crucible: after the whole has been thus exposed, the crucible should be left for a considerable length of time on the fire, in a manner sufficient to maintain it at a red heat. If much of the salt of copper existed in the stomach, the cinder will have a bluish tint. It must next be treated with distilled water, at 212°, to take up any soluble matter; and afterwards by nitric acid in excess; or dissolve in a moderate quantity of water, and pass through the solution a stream of sulphuretted hydrogen, which will throw down a brown sulphuret of copper. This must be washed on the filter, and the whole, namely, the precipitate and the filter, exposed to a red heat, until it is completely charred to a cinder. This must then be treated with nitric acid, diluted with water, filtered, and tested with ammonia and ferrocyanate of potassa.

In 1829 and 1830, the Belgian government employed M. Barruel, M. Gauthier, M. Claubry, and M. Kuhlmann, to investigate a report that sulphate of copper was mixed with the bread in Bruges. They discovered that in 1816 and 1817, this salt of copper, under the name of alum-blue, was first employed by the bakers to raise their bread; and had since that time been generally employed. Bread baked in this manner, was examined, and small morsels of crystallized sulphate of copper found in it; but when this was the case, the bread had a blue tinge. To discover the poison, the bread was incinerated, and the ashes treated with nitric acid, aided by heat, until the whole of the acid was evaporated. The residue was then treated with distilled water, filtered, and tested with ammonia and carbonate of ammonia. The carbonate of copper obtained, was then treated with sulphuric acid, and the solution with ferrocyanate of potassa. The copper impregnation was thus readily detected.

By these means every evidence which chemical analysis can afford, will readily be obtained.

Treatment.

With regard to the treatment of cases of poisoning by salts of copper: sugar was at one time regarded as an antidote, and much confidence was placed in it by Orfila: but, as Vogel first demonstrated, the salts of copper are not reduced by sugar, except at a boiling temperature. Nevertheless, in 1830, M. Pestel, and M. Blanche, Professor of Legal-medicine, at Rouen, made several experiments, which were repeated by M. Girardin, Professor of Chemistry, which seemed to prove, that sugar decomposes acetate of copper at the ordinary temperature of the air. They, however, allowed that this decomposition was very slow, and ultimately it forms a protoxide of the metal, which is not devoid of poisonous influence. The other antidotes, namely, the alkalies, the sulphuret of potassium, charcoal, milk, and albumen, have been found useless, with the exception of albumen, which seems to deserve confidence as an antidote in poisoning by any of the salts of copper. In an experiment made upon a dog, in whom the gullet was tied, after the mixture was administered, thirty-six grains of verdigris, mixed with the whites of six eggs, produced no deleterious effect. Next to albumen, gluten seems to be the most useful substance to administer in this case; and, until albumen be procured, any astringent infusion, or decoction, may be administered, as the tannin forms an insoluble precipitate with the salts of copper.

From the peculiar nature of the precipi-

tate by the ferrocyanate of potassa, hopes were entertained that this would also prove an antidote; but I am not aware of any cases in which it has been administered with this view; and I have not yet made any experiments with it upon the lower animals.

If you are called soon after a poisonous dose of salt of copper has been taken into the stomach, and has begun to display its effects, your first step must be to evacuate the stomach by means of the stomach-pump, aided by much tepid water; and, after having done so, to evacuate the bowels by means of oleaginous purgatives and enemas; at the same time administering freely whites of eggs, in sugar and water, and combatting any inflammatory symptoms, as they arise, by bleeding and other antiphlogistic means.

MM. Barruel and Chevalier have resolved a question of some moment in cases of supposed poisoning, from adding solutions of salts of copper to animal matters. They were asked whether a poisonous effect can be produced, if the salt of copper, say the sulphate, be added to the animal matter cooked in an iron vessel, whilst it remains in that vessel? To this they have replied, that if the mixture be made whilst the animal matters are in the iron vessel, the salt of copper will be decomposed, and the inside of the iron kettle covered with a salt of copper. They proved this by an experiment, and found that the copper of the sulphate which they employed was wholly precipitated, and the broth contained sulphate of iron. This is a fact of much importance, and should always be kept in recollection in examining into the circumstances of any case of poisoning by means of food supposed to contain a salt of copper.

POISONING BY ANTIMONIAL SALTS.

In the metallic state antimony is inert: it acquires activity from its union with oxygen in certain proportions, and the addition of acids. The peroxyde of antimony is inert. Tartar emetic is the most active of its salts, both as a medicinal agent and as a poison. I will, therefore, take it as an illustration of the influence of the whole of the antimonial salts on the living system.

This salt has been occasionally taken with the intention of committing suicide, and instances of death have occurred from its use. Cases are mentioned by Hoffman, Orfila, and Fodere. Dr. Beck quotes a fatal case, detailed by Dr. Recamier in Orfila's work; but in general its fatal effects have resulted from mistakes. In healthy states of the habit, it acts as a violent poison when given in doses which, in a state of disease, are borne with impunity. This fact was first noticed by Rasori, a professor at Milan, who gives, in general, in cases of pneumonia, grs. xij., at first, frequently repeated, and carries the dose to ʒss. Laennec has given grs. 40, in twenty-four hours; I have given grs. 30, in doses of grs. vj., and have seen vomiting produced only by the first and second doses. In Dr. Duffin's case, we see the effects of ʒj. in a healthy habit.*

Experiments on the lower animals seem to render it probable that tartar emetic enters the circulation before acting on the system.

When from ʒj. to grs. 40 of tartar emetic are swallowed by a healthy man, it causes little or no effect on the gullet; but sometimes constriction occurs: in the stomach it excites vomiting, but not always. The larger the dose of the tartar emetic is, the less chance of vomiting is there; and this occurs in the ratio of the extent of the diseased condition of the habit; a person in health does not resist the influence of the tartar emetic so powerfully as a person labouring under disease. There is often a sensation of burning at the pit of the stomach.

In the bowels we find colic pains and purging; and in the extremities violent cramps. The pulse is small and concentrated; there are tremors with hiccough; the skin feels clammy and syncope, and convulsions supervene. The intellect sometimes remains entire, at others delirium displays itself. When applied to ulcerated surfaces, it acts like arsenic, producing coma and paralysis; when applied to the entire surface, I have never observed any thing except its topical influence.

Its fatal effects are not immediate. Orfila mentions a case which terminated fatally in five days. When cases do not prove fatal, great irritability of the stomach remains. Sir Benj. Brodie's experiments demonstrate that the chief influence of tartar emetic is exerted on the brain.

Glass of antimony, an oxy-sulphuret of the metal, acts in the same manner as tartar emetic.

With respect to the *post-mortem appearances*, little opportunity has been afforded to ascertain these in a satisfactory manner. In the stomach, the villous coat appears inflamed, thickened, and covered with tough mucus. The duodenum, also, is inflamed, but the inflammation seldom extends beyond the gut: in one or two cases, however, red spots were found on other portions of the intestines. In the lower animals Schlossser found the blood always fluid.

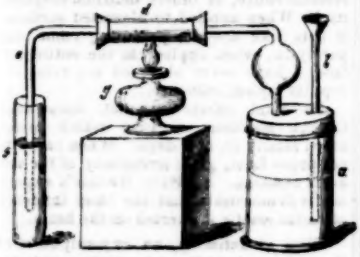
Chemical Evidence.

When any of the poison remains, if in powder it may be mistaken for arsenic, or for corrosive sublimate. In order to distinguish it, heat it on a watch glass, over a lamp; if no volatization takes place, but the

* "Edin. Med. and Surg. Journ.," vol. xix. p. 354.

powder decrepitates, or chars, and is reduced to the metallic state, it may be concluded that it is tartar emetic. If it be in solution it reddens the tincture of litmus, and precipitates lime-water white, and the precipitation is soluble in an excess of the tartar emetic solution, and also in nitric acid. If the poison be found in solution, pass a stream of sulphuretted hydrogen gas through it, and afterwards acidulate it with hydrochloric acid. This gaseous acid, and the hydrosulphate of ammonia, will detect 1 part of he poison in 100,000 of water.

If none of the poison be found, pass through the contents of the stomach, or any mixed fluid supposed to contain the poison, a stream of chlorine. The intention of the chlorine is to coagulate any animal matter which may be present; next, add some tartaric acid, which, dissolving the antimonial oxides, or salts, brings, as it were, the whole into the fluid state, which is then to be filtered. Next pass through the solution a stream of sulphuretted hydrogen gas, if an antimonial be present, an orange precipitate of sulphuret of antimony will be thrown down; collect, wash, and dry it, and reduce it by passing hydrogen gas over the sulphuret, in this apparatus:—



a, represents a jar, the mouth of which is closed with a sound cork, perforated, to permit the funnel, *b*, and the end of the tube, *c*, to pass into the jar. The other end of *c* perforates a cork in the glass cylinder, *d*, and at the opposite end is another bent tube, *e*, dropping into the narrow jar, *f*, which is nearly filled with a solution of acetate of lead. The spirit lamp, *g*, is supported on a block of wood. Into *a* some metallic zinc and water are put, before the jar is closed, and into *d* some of the supposed sulphuret of antimony. When the apparatus is to be used, sulphuric acid is poured through the funnel, *b*. This instantly aids the decomposition of the water by the zinc; hydrogen gas is evolved, and, passing over the heated sulphuret, carries off the sulphur in the form of sulphuretted hydrogen gas, and leaves the antimony reduced to the metallic state. The acetate of lead in *f* prevents the sulphuretted hydrogen from annoying the operator.

The niceties to be observed in the application of hydrogen gas, are, not to apply the lamp to the tube until the gas which is coming over be freed from atmospherical air, otherwise an explosion may occur.

Metallic antimony will be obtained by breaking the tube; and this may be again oxidised by heating the tube, and the protoxide then dissolved by diluted nitric acid, and the sulphuret again thrown down from this by sulphuretted hydrogen. All other tests are nugatory.

Treatment.—If vomiting have not occurred the stomach-pump must be employed, with decoction of yellow bark, or a solution of pure tannin, or any astringent vegetable, so that a tannate of antimony may be formed. The tincture of bark is useful, as the alcohol allays the irritability of the organ. Bark in powder may be given.

If symptoms of inflammation supervene, cupping over the stomach will be requisite, after which opium and calomel should be given. For a very considerable time extreme irritability of the mucous surface remains; consequently a milk diet and demulcents should be freely employed.

Butter of antimony, a chloride, operates as a powerful escharotic, and destroys life by its topical influence.

The butter of antimony is used by farriers and veterinary surgeons in their treatment of horses; and it has occasionally been employed by the suicide. It is a powerful caustic, and is, in fact, chiefly used as an escharotic; consequently, it may be easily inferred that it cannot be taken into the stomach without producing such an effect on the mucous membrane as to destroy life by its caustic influence, so rapidly that it never enters the circulation.

When any of the poison is found it is recognized by throwing it into water. It undergoes a change, and is converted into two distinct substances, namely, an insoluble hydrochlorate of the protoxide of antimony, and a soluble acid hydrochlorate of the same oxide. Both of these substances furnish sulphuret of antimony with sulphuretted hydrogen; and by treating this in the same manner as the sulphuret yielded by tartar emetic, the chemical evidence is complete.

If the poison do not immediately kill, we must proceed as in cases of poisoning by tartar emetic.

NITRATE OF SILVER.

I am not aware of any instances, either of murder or of suicide, from the administration of the nitrate of silver; but accidents of a fatal kind have resulted from overdoses of it having been accidentally employed as a medicine. The influence of the poison is soon experienced on the stomach by the most intense pain, and on the lungs

by the greatest embarrassment of breathing. These topical symptoms are followed by collapse, which continues to increase until the fatal issue of the poisoning takes place. The post-mortem examination of the body displays the lips, the inside of the mouth, and the œsophagus, covered with a greyish coat, the result of the action of the salt on the mucous membrane: the stomach is found with indications of inflammatory action extended over every part of the viscus, the villous coat is softened, and small grey eschars are scattered over it near the pylorus.

If any of the poison remain, it is readily recognized by its physical characters, both in the form of crystal and in the fused cylinder. Its action on the cuticle, also, readily distinguishes it. In solution it is known by its ready decomposition by the hydrochlorates, which form with it a white, curdy precipitate, insoluble in boiling nitric acid, but soluble in ammonia. To determine the fact of the presence of both its compounds, a few drops of nitric acid, on the crystals or the cylinder, or their solutions carried to dryness, develops instantly the nitric acid, whilst the silver is detected by submitting the chloride to the action of hydrogen gas, in the same manner as testing for tartar emetic. The salt first becomes yellow, it then fuses, and acquires a reddish tint, which gradually becomes paler, and at length a coating of pure silver is left in the tube.

If the contents of the stomach which have been vomited, or which have not been vomited, are the only substances we have to operate upon, we must boil the whole with hydrochloric acid, and wash until we obtain the chloride as free as possible from the animal matter; and then decompose it in a tube in the same manner as in reducing the chloride procured from the simple solution of the nitrate. By these means we complete the chemical evidence.

In cases of poisoning by this salt, the hydrochlorate of soda, or, more properly speaking, the chloride of sodium, is to be freely administered in solution, so as instantly to form the chloride, which is insoluble in the juices of the stomach, and inert. If any symptoms of inflammation remain, topical bleeding should be resorted to, and the irritability of the digestive organs allayed by opium.

CYANIDE OF SILVER.

It has been stated that this is a poisonous agent, but as it is insoluble in water, and in solutions of all the alkalies and the alkaline salts, except ammonia, I am disposed to regard it as an inert salt.

TRISNITRATE OF BISMUTH.

This salt, the old subnitrate of the Pharmacopœias, has in a few instances proved fatal when it has been overdosed. A case of this description has been recorded by Dr. KERNER, of Weinsberg, in the "Annales of Heidelberg;" but large doses of the trisnitrate have been taken, as a medicinal agent, with impunity.

When a case of this kind occurs the poison is readily recognized by its white colour, its insolubility, and its ready reduction when it is mixed with charcoal, and exposed to heat in a crucible. By acting on the metal, thus procured, with nitric acid, and throwing the solution into water, the trisnitrate is again thrown down as a precipitate, and a binitrate is left in solution. When the trisnitrate is mixed with animal or vegetable matter it is decomposed; and a fluid and solid product, as when the nitrate is thrown into water, is the result. Pass through the whole a current of chlorine; filter, and treat the supernatant fluid, after it is concentrated, with sulphuretted hydrogen, which blackens it; with potassa which affords a white precipitate; and with ferrocyanate of potassa, which gives a whitish yellow.

BICYANIDE OF MERCURY.

[The annexed engraving was accidentally omitted from its proper position in Dr. Thomson's Lecture XL., immediately below the fifth paragraph of the second column, page 565. In appending it here, we reprint the passage which it was designed to illustrate]:—

When a case of poisoning by this salt occurs, we have to look for—1. Any portion of the poison which may remain. 2. To examine the vomited matters. 3. To examine the contents of the stomach; and, 4. The stomach itself.

1. If any of the poison remain, it is recognized by the quadrangular, obliquely-terminal crystals, its styptic taste, and its ready decomposition by heat, with the extrication of cyanogen, whilst the tube in which it is burnt becomes coated with metallic mercury. The tube should have the form *a*, and be terminated by a glass jet, *b*, fixed in a sound cork, *c*, made air-tight. By holding the tube over the flame of a spirit lamp, *d*, the gas which escapes, when ignited, will burn with a violet-coloured flame.

LECTURES
ON
MATERIA MEDICA AND THERAPEUTICS,

NOW IN COURSE OF DELIVERY
AT THE
WINDMILL-STREET SCHOOL OF MEDICINE,
BY
GEORGE G. SIGMOND, M.D.

LECTURE XXII.

CONIUM MACULATUM (*continued*):—*The root of hemlock; its lesser acridity in particular months. The leaves and the seeds; conia contained in each; its quantity superior in the seeds. Powers of conia as a poison. Treatment of poisoning therewith. Time for gathering the leaves. Their preservation. The powder. The extract. Mr. Judd's experiments with extracts of conium, variously prepared. Effect of seasons on plants. Power of conium as an opiate. As a palliative in cancer, and carcinomatous tumours. Ancient and modern opinions against operations for cancer. Combination of hemlock with carbonate of iron. Treatment of cancer at its worst stage. Incautious use of poisonous remedies in the practice of medicine. The pain in the last stage of carcinoma mammæ.*

GENTLEMEN:—The root, the seeds, and the leaf of the spotted hemlock, conium maculatum, produce a deleterious effect upon the human body, and have been, by the ingenuity and skill of man, converted into a useful remedy in various diseases. The root, however, does not at all times act with equal energy; it varies according to the season of the year in which it has been collected; it appears most probable that at the time at which the leaves are in their highest state of vegetation, and are endowed with great activity, the root has little or no poisonous property, and by such a conclusion we are enabled to reconcile the different opinions which are to be found, based on actual experience, expressed by various individuals. Whilst BARON STOERCK tells us that the fresh root cut into slices pours forth a milky juice, which is bitter and acrid to the taste,—and of which juice he just sipped a drop or two, the consequence of which was that his tongue quickly became rigid, swollen, and very painful, and he was unable to utter,—the authors of the "Medical Botany" inform us, that having gathered a considerable quantity of the root in March, they ascertained, contrary to their expectation, that its odour was not so strong as that of the few leaves which were springing from it, and, after chewing a drachm, they could discover no acrid power, and the taste, instead of being bitter, was sweet, and much resembled the flavour of a raw parsnip. Mr. LANE, we learn from the "Flora Londinensis," also ate a considerable part of the root without inconvenience, indeed he has eaten it frequently. It is stated in the "Toxicologie Generale," that two pounds gathered on the last day of May killed a dog in six hours, although three pounds gathered in April failed to produce any effect.

In the leaves of hemlock, collected immediately before or after the moment of inflorescence, appear to reside the virtue of the plant, as likewise it does in the seed, and GEIGER obtained from them both, coneine, or conia; but from the seeds a much larger proportion, when fully developed, but still green, and a still larger quantity when the seeds were ripe, but the experiments instituted by Dr. CHRISTISON do not bear out the Professor of Heidelberg in the latter instance. The fact observed by GEIGER, that the dried leaves of hemlock, and some extracts of their juice, do not contain conia, Dr. CHRISTISON fully confirms. Of the various extracts which have been examined by the indefatigable Professor at the University of Edinburgh, that which has yielded the largest proportion of conia is one prepared by alcohol from the ripe seeds. Two hundred and twenty grains gave nearly five grains of conia; the experiments which have been made incontestibly prove that if conia be not really the active principle of hemlock, it concentrates in itself the properties of hemlock, and, therefore, we may fairly judge of the relative power of the different portions of the plant by the quantity of conia that each yields. Now, the experiments that have been made by the greater number of those who have entered upon a course of examination of the plant, nearly draw us to the conclusion, that the seeds possess the most decided powers.

The effect of conia, a deadly poison to every animal, is admirably detailed by Dr. CHRISTISON, whose two papers in the "Medical Gazette," on the poisonous properties of hemlock and its alkaloid, conia, contain almost all that is interesting on the subject, either in a chemical or historical point of view, and I should only diminish their value were I to attempt either to abbreviate them, or to give an outline of the information which they convey. He has taken from every source, modern or ancient, all that could be collected, and has given the conclusions to which he has been led, with that clearness and accuracy which mark the labours which he has undertaken. The physiological effects relative to the

action of this poison are of the most interesting nature, the subtlety and swiftness with which it acts are best exhibited by its injection into the vein; two grains of the alkaloid, exactly neutralized with thirty drops of muriatic acid, in two seconds, or three at the furthest, destroyed a young dog when injected into the femoral vein; not the slightest struggle gave warning that life had ceased. It does not appear from this, though GEIGER's opinion was different, that the activity of conia is lessened by its neutralization by an acid. DESCHAMPS, of Avillon, to whom I have before alluded, believes that the conia of GEIGER is dependant upon ammonia for its alkaline properties; this, however, has been, more recently, denied.

The toxicological properties which are generally enumerated as belonging to conium, are such as belong to the narcotics; paralysis and madness are among the symptoms that have been observed. BERGIUS speaks of some children who ate the root; intoxication, vertigo, great heat and pain in the stomach, quickly followed; then convulsions, epilepsy, distortions of the eyes, flowing of blood from the ears, the jaws so shut that no force could open them, efforts to vomit, but nothing thrown up, singultus; when death had concluded the tragedy, a green froth continued running from the mouth; one of the children made water, in the midst of the agony, to the height of five or six feet, with a strength and violence surprising to the spectators. In a man, delirium, with constant heat of the stomach and unextinguishable thirst, were of long continuance, and followed by an erysipelatous tumour in the neck. AN Italian, who cultivated vines in his own country, found amongst them a plant which he mistook for a parsnip, he ate part of the root for his supper, and gave the rest to his wife, after which they went to bed; in the middle of the night they awoke, completely delirious, and began running here and there, without a light, over the whole house, in a fit of madness and fury; they struck themselves so rudely against a wall that they were bruised all over, and their faces, particularly, and eyebrows, appeared swelled and bloody; suitable medicines restored them to health. M. AGASSON, speaks of a man who had taken hemlock, and who had all the upper parts of the body convulsed, whilst the lower extremities were paralyzed. In the year, 1822, a grenadier in Spain, partook of some broth, into which hemlock had been put, and died in three hours. The case is related in the "Journal de Medicine." On dissection, the stomach was found half filled with broth; some red spots appeared about the pylorus. It was observed that the heart and vena cava were empty of blood; on opening the cranium there flowed out a sufficient quantity of that fluid to fill two ordinary sized chamber utensils; the vessels of the brain were gorged; his comrades, who had partaken of the same soup, escaped unhurt, with the exception of giddiness and headach. Dr. CHRISTISON found the same state of the blood in a case of an old hypochondriacal woman, poisoned by two ounces of an infusion of hemlock leaves, with the same quantity of whiskey, the blood everywhere remarkably fluid, although the vessels in the head were not very turgid. Dr. COINDET found that a small portion of the infusion prevents fresh-drawn blood from coagulating; on account of this extreme fluidity, it is, that the blood flows from the mouth, ears, and nose.

To dislodge from the stomach the noxious ingredients, must be the first effort; whether by the pump, or by emetics, must depend upon the quantity of the poison, and the time that it has been taken; the latter, however, are carefully to be given, for the torpidity of the stomach may give rise to the accumulation of large doses, which, when that organ regains its power may cause irritation, or inflammation. I believe in the poisoning from this, as well as from the greater number of the narcotic agents, cold affusion upon the head is the quickest, the most certain, and the easiest antidote; and, most probably, the best remedy that, at a moment's notice, could be resorted to, would be the placing the unconscious patient under the pump, and the gently giving him a few shocks on the head from cold water, taking great care not to be too violent in the use of the handle. The mere sprinkling is serviceable, but the affusion is still more so.

There has been some difference of opinion as to the time at which the leaves should be gathered for medical use. WITHERING recommended that this should be done about the end of June, when the plant is in flower: his directions were to pick the little leaves, and to throw the stalk away; to dry those small leaves in a hot sunshine, or in a tin dripping-pan, or other convenient vessel, before the fire; to preserve them in bags of strong brown paper, or to powder them, and keep them in glass phials; to put them away in a drawer, or place where no light can come to them, for the light not only takes away their fine green colour, but also their virtues. Dr. MATON recommended that the plant should be collected when the seeds began to form, and that these should be retained. As far as I have been able to ascertain the precise period for gathering, and I have made some experiments on the subject, the best time is that at which the plant is in its full flower; the leaves are to be entirely freed from stalks, and as much as possible from external moisture; they are then to be laid on thin layers, or willow baskets, stripped of their bark; they must be placed in a room from which all light is excluded, and then submitted, for three or four hours, to a heat a little be-

low 140° of Fahrenheit; they are then to be turned, and exposed again to the same heat for about eight hours. Some herbalists employ a much higher degree of heat, but the leaf becomes too shrivelled. At the temperature I mention they are sufficiently dry, and crumble in the hand, on being rubbed, into a fine powder, which may be preserved in closely-stopped opaque bottles for many years, perfectly unimpaired. Oil jars, made perfectly clean, and kept in a warm, dry situation, are the best receivers for the leaves, and, when hermetically sealed, prevent the possibility of decomposition.

Some medical men prefer the powder to any other form of exhibition, and commence the dose with three grains, which they gradually increase, and even an ounce has been taken. Dr. COLLIER, I observe, mentions in his translation of the London Pharmacopœia, that JOHN HUNTER gave an ounce at a dose: the patient left off the remedy for a day or two, and reverted to the use. Although he recommenced with half the dose with which he had left off, it proved fatal, and Dr. JOHN DAVY states, that in some cases of pneumonia he commenced with the large dose of one drachm, combined with one grain of emetic tartar, the present antimonii potassæ tartras. The odour of the dried leaf is very peculiar, and has been compared to that of the urine of the cat, but this is not so striking as in the fresh leaf just bruised; it is narcotic; its taste is slightly bitter, and nauseous. Dr. BIGELOW observed that, on distillation of the green leaves, the water which collects in the receiver has an insupportably nauseous taste, whilst that which remains in the retort is comparatively insipid. The extract of hemlock has been the subject of very considerable discussion, and various means have at different periods been suggested, for the purpose of obtaining this preparation in its best and most active form. The original directions given in the old Pharmacopœias are founded upon the recommendation of the Baron STOERCK. The formula ordered is to "take fresh hemlock leaves, gathered just before the plant begins to flower, which it commonly does in July, or about the latter end of June; press out the juice, and immediately, without suffering it to settle, put it into a shallow, glazed earthen-pan, over a gentle fire, keeping it continually stirring, to prevent its burning, till it is reduced to a thick, greenish-brown mass. This mass may be formed into pills, with a little of the powder of the dried leaves of the plant."

The directions of the present day are very simple, they are similar to those given for an extract of aconite, of belladonna, or of digitalis; they merely order that the fresh leaves should be bruised in a stone mortar, sprinkling a little water; then, that the juice should be expressed, and that evaporation should take place to a proper consistence, without straining. The process of evaporation is variously performed, according to the particular views of the chemist; it is sometimes done in vessels heated by steam, at others in vessels exhausted of atmospheric air, at very low temperatures, and at other times by spontaneous evaporation. Each individual believes the extract he has obtained, to be the purest, and I have frequently heard medical men express various opinions as to the medicinal effects of these different modes.

Mr. JUDD has lately instituted some interesting experiments, which he collected together in a paper, read, last March, at a meeting of the *Medico-Botanical Society*, with a view to ascertain the relative strength and medicinal qualities possessed by various vegetable extracts, procured from the most accredited sources in London. Three specimens of the extract of hemlock were the objects of comparative experiments, as to their power of alleviating cough, and of procuring sleep during consumption, and also as to their physiological action upon healthy animals. The first extract was prepared by exposing the expressed juice, with one-seventh of its bulk of water, in a wedgwood evaporating dish, over the fire, until reduced to an extract. The second had been prepared *in vacuo*; the third by inspissating the expressed juice to the consistence of an extract by spontaneous evaporation. These extracts were obtained from three houses of high character; they had been prepared from the plants of the last summer; and, upon inspecting them, every member was struck with the difference of intensity of taste, of colour, and of odour. The preference was certainly given by all to that which had been obtained by means of spontaneous evaporation; and, from the result of the experiments, the conclusion was drawn, that it was preferable, in equal doses, to that which had been obtained by the evaporation in wedgwood dishes, over the fire, as it alleviated the cough, and procured a tranquil night, where the other failed; it also was found more powerful than that prepared *in vacuo*, in an extended series of experiments on animals. Two drachms of this extract, administered to a cat rapidly induced symptoms of poisoning, and destroyed life in twenty-six minutes. Mr. JUDD states, that two hundred weight of good conium plants yield fifty pounds of juice, sixteen ounces of which afford one of extract. Various parts of the plant have their juices of different strength; the root is least powerful; the stem next; the leaves stronger; and the seeds strongest of all. The plant should be gathered in June, just as it breaks into flower; and those growing in dirty, boggy places should be preferred, as they are the most potent.

Mr. JUDD's paper, which is altogether one

of the most interesting communications that I have for some time read, will shortly be published in the "Transactions" of the Society. It will be found to contain some most valuable matter, to which I may again have occasion to refer. The extract of which he had reason to speak so highly, was made by Mr. SQUIRES, a very intelligent and able chemist, in Oxford-street.

It was Mr. HOULTON who first recommended the process of submitting the expressed juice to the atmosphere, in shallow vessels, and thus producing spontaneous evaporation; but there appeared to be in the specimens which I saw of his preparation, less of the external characteristics of good extract of hemlock, than that which was obtained under ordinary circumstances. The rapid changes that vegetable matter undergoes, whether by the action of heat, or of atmospheric air, is such, that the greatest variations must be observable in different preparations, and it is much to be regretted that one certain law is not laid down and obeyed, by which we may, as nearly as possible, have our instruments of art of the same equal power. We have at present much to learn; we must keep registers of different seasons, as affecting different plants, for we shall find that the hemlock of one year's growth will be essentially superior to that of another, and that the same occurs with most of those herbs of which I have spoken. The same law that regulates the growth and development of the grape, and so essentially contributes to the superiority of the vintage of one season, holds good in the rest of the vegetable kingdom, and as more attention is directed to the subject of medical botany, which is just beginning to attract the observers of nature, the more shall we be enabled to render our science important to man, and useful in the alleviation of disease.

The power of conium, as a narcotic and sedative, approaches much nearer to opium than do the other medicines of the class which has been the subject of my lectures, and it is upon the nervous system that its agency is more particularly to be observed. It lulls pain with considerable rapidity, when occurring in some of the most sensitive parts; it does not so completely induce sopor as does the juice of the poppy. The state in which an individual under its influence appears, approximates more nearly to stupefaction, from which there is some difficulty of completely arousing him, and this is occasionally attended by tremors. In very many cases of acute suffering it has been found to enjoy the power of palliating and of essentially relieving, and it can be given with great safety in many of those diseases in which opium, belladonna, and hyoscyamus are acknowledged to be useful. It may be administered in combination with them, or it may be substituted for them, when they have lost their influence. As a specific in any one complaint, I do not believe that it is to be trusted.

Although the great encomiums which it has received in cancer are not altogether undeserved, it by no means has fulfilled the high expectations which the recommendations of Baron STOERCK had excited. It certainly is true, that in many of those painful sores which have been called malignant, and which approximate to cancerous ulceration, soon after its administration the acute agony is very much mitigated, that the discharge assumes a less virulent appearance, and that even the external character of the ulcer wears a somewhat different aspect, and that it is even possible to maintain, "with other appliances to boot," this amendment for some short space of time; even delusive hopes of ultimate recovery have been inspired: the fallacy, however, of sanguine views at last becomes exhibited, for, after this suspense of action, the disease again advances, and, though its rapid strides may be prevented, it ultimately proves the inefficacy of hemlock as a decided curative agent, though it may be acknowledged to be a palliative. Most of the surgeons who have adorned the science of this country, have devoted considerable attention to carcinoma, and all acknowledge how many points of difficult explanation invest the subject: it is a source of the most anxious investigation, for not only must diseases be accurately distinguished one from the other, but there must be a conscientious feeling of the necessity of judging when the knife is to be employed, and when the fearful and painful operation is to be avoided. The physician who knows the truth of HUNTER's observation, that "the necessity for operation is, in truth, the defect of surgery," is called upon to discover what are the means by which excision may be rendered unnecessary, pain alleviated, life rendered less burthensome, and its days protracted to the utmost span.

In the earlier stages of cancer, in that state in which scirrhus only exists, the pain is alleviated by hemlock; it is at first, however, so transient, as scarcely to require any anodyne, but at that stage in which a change is about to occur, which is denoted by the skin wearing a dusky or livid red, with an appearance of a shining tension, the suffering becomes more decided; instead of a shooting pain, occasionally felt, it becomes distinct and frequent, like the darting of a sharp instrument, or, as it has been termed, lancinating, and there is a sense of heat or of burning. In this state great relief is afforded by narcotics generally, and particularly by hemlock, which appears to reduce, in a singular manner, the acute sensibility of the system; it likewise seems to retard the moment when the tissues become

infiltrated with serous, gelatinous, bloody, or purulent fluids.

In the various indurations of the mammary glands which excite suspicion as to their ultimate tendency, from their occurrence at a particular period of life, it is in your power, by cautious watchfulness, by enforcing the strictest regularity of diet, and by the exhibition of appropriate remedies, to ward off, for a great number of years, and, indeed, sometimes to suspend, during life, any further development of diseased action; and although you cannot expect in every instance to be enabled to carry into effect this most desirable object, you will, in a great number of cases, succeed in checking the advance of the malady, in mitigating the severity of the pain, and in palliating the worst features that present themselves to you. Age has, it must be remembered, a very considerable influence upon the development of carcinomatous tumours, and they will run with much greater quickness through their sad career, in a female at the age of forty-five, than they will when they attack a woman who is sixty years of age; they will at that, or at a later period of life, remain for years without any advance, continuing perfectly stationary to the last hour. In such cases exposure of the part to atmospheric influence must be prevented by the application of belladonna plaster, or of hemlock, and these, alternated, sometimes are more influential than when kept constantly employed, or, at any rate, the patient believes so.

In that carcinoma which, in the female breast, begins from a very small spot, and radiates from thence as from a central point, in different directions, and which, as the progress of the disease advances, exhibits itself in firm white bands, like thickened and compact cellular substance, which may be easily traced through the fat, you may, for a very considerable length of time, keep the disease in abeyance, and allay the general constitutional irritation, by the application, externally, of conium, and also by its occasional internal administration; and to this has been added the watery diet, as a further prophylactic means, advised by M. Pouteau, and carried into effect by John Pearson.

Although there may be some opinions to the contrary, and though these opinions have been asserted by some distinguished physicians and surgeons, I think you will find that the general impression is, that cancer of the mamma is not to be considered as a local alteration of structure, but as a proof of a general diathesis, and that by the removal of the local lesion, we not only do nothing but remove merely the symptom of the general disorder, but frequently cause greater danger, and sometimes accelerate a fatal termination; even those who believe that scirrhus is a local disease, acknowledge that there is a point at which it contaminates the system. Thus, Sir Everard Home thinks that no cancerous disease was ever so in its origin, but that when parts have been long in a diseased state, there is no security against their not ultimately taking on a cancerous action. Mr. Travers believes that the system is not contaminated till the scirrhous tumour begins to ulcerate in its centre, and that the matter of the poison is generated, not by the action which forms the tubercle, but by the series of actions instituted to destroy and remove it. The object which I have to impress upon your mind is the duty of examining the therapeutic agents which we possess, which may prevent the necessity of the performance of an operation which, from the earliest annals of our art to the present moment, has been pronounced not only to be dangerous, but to hasten the termination of human life. The language of Hippocrates on this subject is very striking, and I will show you that after a lapse of two thousand years, his descendants come nearly to the same conclusion as he had formed, and had expressed to his contemporaries. He says, "It is better not to cure all latent cancers, for those who have been cured die quickly; those who are not cured may last a longer time."

But the chief of surgeons, the experienced Celsus, speaks still more explicitly, when he tells us that "some employ escharotics, some the actual cautery; others remove it by the knife; but no medicine has proved of service to any. When cauterized, the cancerous parts are quickly irritated, and increase till death takes place; if extirpated, even after the wound has cicatrized the disease returns." Paul, of Ægina, maintains nearly the same opinion; the remedies that he proposes are the narcotics, more particularly the solanum nigrum, externally applied, in the juice of which he recommends folded linen to be immersed, and then spread upon the diseased parts. He it is who gives us the derivation of the word *cancer*, which was employed, he says, in consequence of the veins swelling, and extending like the claws of the crab, whilst others derive it from the outstretched claws with which the crab seizes any aquatic animal.

In later days the judgment of such a man as Dr. Monro may be quoted in confirmation of ancient authority; he says that of nearly sixty cases at which he had been present during their extirpation, only four patients remained free from the disease for two years. He doubts the propriety of any excision, remarking that upon a relapse, the disease in those he saw was more violent, and made a much quicker progress than it did in others on whom no operation had been performed.

In a number of "Rust's Magazine" is a

very important review of the surgical clinique at the University of Breslau, which contains some observations from the note-book of Professor BENEDICT, who tells us that he had performed ninety-eight amputations of the breast; two ended fatally, from exhaustion, during healing of the wound, and in all the rest, with the exception of thirteen, the disease returned after the wound was healed, and terminated in death. With regard to the remaining thirteen, the author is morally convinced that in several cases an error of diagnosis was committed, and breasts were removed that were merely affected with scrofulous tumours, sarcoma, or some other innocent change of structure. If all medical men had the honesty and candour to proclaim their want of success, and the truths that have burst in upon them after long experience, what inestimable advantage to the suffering sick would be the result! What a treasure to the medical man to guide him on his onward path!

I hope I do not take too much upon myself when I say, that the greater the experience the surgeon has acquired, the more firmly is he rooted in the opinion that the operation is very seldom to be performed, and though such an authority as SCARPA may be quoted against my assertion, that even in the earlier stages, before the enlargement of the absorbent glands, leading from the original seat of the malady, and although Mr. NOOTH may have believed that there are indications in the state of the glands which can guide the surgeon, still, only the mildest and gentlest treatment is to be adopted. I will here quote the language of one who, for fifty-seven years, had opportunities of which he fully availed himself to obtain the most valuable practical knowledge; I mean Sir EVERARD HOME, who, in 1830, took leave of the profession in a manner which was honourable to himself, and useful to the community, by the publication of a short tract on the formation of tumours, and the peculiarities that are met with in the structure of those that have become cancerous, with their mode of treatment. Having in this invaluable legacy, stated the principal causes of this disease that came under his notice, so as to explain its nature and symptoms, and their progress in peculiar instances, he is sorry to add that very little progress has been made either towards a cure or prevention. Many tumours, he observes, that were formerly, by violent applications, rendered true cancers, now never take on the disease; he then states, that mild means have been employed with great advantage, and adds:—

"The treatment in my own practice that calls forth this commendation, is the internal and external use of hemlock, and in proof of its efficacy, in some cases where the medicine was left off, the symptoms became more violent, and, when resumed, abated. Also, when the powder of the leaves was prepared, at the proper season, and the light entirely excluded while the drying of it was carried on, even in confirmed cancerous ulcers, benefit was derived in so great a degree, that the patient could ascertain, from increase of pain, some change had taken place in the application, when powder less accurately prepared was used as a substitute for the other. I have even prevented the operation when the day was fixed, and the patient lived for months under this palliative mode of treatment, without any progress of the tumour, and was carried off by epileptic fits. In many cases the swelling diminished, and in others remained stationary for years, and never afterwards made any advance, so that I am convinced that I had before been too much alarmed, and frequently came to an operation before it was required."

Such testimony I cannot but impress upon your minds, as the most invaluable admonition from a surgeon of great experience, of first rate anatomical knowledge, and from one who had studied under him who is recognised as the founder of a school, JOHN HUNTER.

In combination with iron, hemlock has been found very serviceable, it was first suggested by JUSTAMOND, and Mr. CARMICHAEL of Dublin, whose essay on the effects of carbonate, and other preparations, of iron upon cancer, contains some very valuable knowledge; he tried it, and, in some cases, the union was attended with evident benefit. In one case the iron produced no amendment until it was united with the extract, and the relief was immediate and permanent.

When the skin covering the immediate scirrhus is no longer moveable, in consequence of the adhesions that have been contracted,—when it becomes altered in its colour, is reddish, or has a darkened hue, is in an irritable state, softens, and ulcerates in one or more points which, at a subsequent period, unite in one ulcer,—when the mass beneath undergoes a very remarkable change, is traversed by numerous blood-vessels, loses its former hardness, becomes infiltrated with secretions, the result of morbid action, and the general appearance indicates that the structure of the parts has undergone a considerable change—it is right, at this stage of the disease, at first, to suspend, for a time, the administration of hemlock, and to have recourse to those means which give strength to the general frame, and to soothe and tranquillize the nervous system, without, if possible, the use of narcotics, for the constitution is otherwise so habituated to them, that, in the last stage, in which they ought to prove of essential value, they are too often inert, and fail to give that alleviation of pain, without which the

last hours of the unfortunate patient are rendered most miserable.

At this particular period of the progress of the disease, it is, that the preparations of iron afford so much aid, and, whilst they strengthen the health, appear to possess some power over the incipient ulceration, giving it a more healthy aspect, checking its progress, and even, it has been asserted, curing the disease.

The sole benefit which could be derived from the hemlock is from its allaying pain, and rendering the nervous system obtuse, and patients have been kept almost in a state of stupefaction, which, at last, has ended in the loss of reason, or of memory. The great art, at this stage of the complaint, is to palliate by all the soothing applications, and by avoiding every injudicious stimulus, remembering the golden maxim, that when you can do no good, you must do no harm. It is true that what were formerly called simples, and from which much utility was derived, from the mildness of their operations, such as the juices and barks of our indigenous plants, have been long since banished from the Pharmacopœia, and it now exhibits only a formidable array of poisons. All that ingenuity and art could devise to extract from every substance its concentrated virulence, has been collected together for the purpose of curing diseases, and the most energetic and destructive drugs are allowed to be used by the youngest members of our profession in cases where the greatest nicety and most discriminating judgment are to be exercised; the art of palliation is too often abandoned for an anxious, and for that which might be, under proper regulations, a praiseworthy desire to try new remedies; the stages in which various medicines are useful are neglected; hence our science loses its character; hence the opponents of the most regular and systematic practice of physic, that has gained honour and esteem wherever it is known, are enabled to brand it, as the Homœopathists have done, as conjectural and uncertain.

In the last sad stage of cancer, hemlock, if it has not been so injudiciously employed as to have no longer any efficacy, becomes the chief support and the best friend of the sufferer; it is preferable to opium: it is true it does not produce any of the agreeable influence of the latter drug, but it is fully as quick, and much more permanent, in its sedative and anodyne virtue, and it does not require to be so frequently had recourse to. Heberden first told us, in the last stage, besides the usual distress of fever, the hectic patient is often harassed with pains like those of the rheumatism, which wander throughout the whole body, or remain constant and fixed in one part, and, what is rather strange, often at a great distance from the primary malady, and, in appearance, unconnected with it; he observes, that these pains have been so great as to make no small part of the patient's sufferings, and not to be tolerable without the assistance of opium. These pains, at a very distant part of the body from the seat of cancer, are found principally where the ulceration exists in parts that are exposed to the action of the air, and are frequently met with even where this disease is developed upon the lips, or upon the glans penis, hemlock, in such states, is invaluable, and, indeed, is the sheet-anchor of the medical man in the last moments.

Amongst those distinguished men of the present day who have written on the varieties of diseases which are comprehended under the name of "Carcinoma Mammæ," is Sir Charles Bell who, as surgeon to the "Middlesex Hospital," had such opportunities of studying the disease, he observes, "that the patient, excessively attenuated, will at last sink from the continuance of a peculiar hectic, attended with pain in the lower part of the spine, hips, and shoulders;" it is at this moment, that hemlock gives relief, and that I should strenuously commend its use, and I now conclude this lecture with Sir Charles Bell's remarks on the patient endurance of the female of this most melancholy disease; "though conscious that she is dying, suffering the most acute agony, she allows no expression of complaint, or of impatience, to escape her; but, on the contrary, calm and placid, giving an example of unostentatious resignation, and the blessed influence of religion, by witnessing which, the mind naturally reverts to the boasted instances of philosophy in the other sex, which are as nothing in comparison."

ON THE CURE OF

VESICO-VAGINAL FISTULA,

AND LACERATION OF THE BLADDER AND VAGINA:

By Professor Dieffenbach, *Berlin.*

The observations which I have already made, contain my physiological views on this accident.* I shall now proceed to examine a few of the methods of treatment hitherto proposed for the cure of vesico-vaginal fistulæ.

Jobert, in a memoir communicated to the "Gaz. Med." of Paris, has written at some length, on the history of the operation, but his remarks are not free from national partiality: on the other hand, the estimation made by Killian of the different processes, is much more complete and impartial.

* See Lancet, vol. ii., 1835-36, p. 754.

1. Cauterizing and burning the edges of the fistula, have produced the least beneficial results amongst the various methods which have been employed. In general, authors say it is not applicable when the loss of substance is great, and should be reserved for cases of small fistulous openings; but, even for the latter, it does appear to me to act in a very favourable manner. According to my experience, I would only employ the cautery in cases of fistulæ lying near the neck of the uterus, and hence brought to view with the speculum.

2. Sutures. *a*. The suture and other means of obtaining union without refreshing the edges of the wound.

When the surrounding tissues are very firm; when the fistula is not larger in diameter than one's finger; when the parietes of the bladder cannot be separated from the vagina, without considerably dilating the opening, I prefer the application of the ligature to every other method.

After having drawn forward the parts, the surgeon should pass a curved needle, armed with a thick ligature, through the cellular tissue uniting the bladder and vagina, so as to embrace, circularly, the opening, a few lines from the edges. If one ligature be insufficient to bring the edges of the fistula in contact, two or three more stitches may be applied. I obtained, by this method, the most happy results in the case of a Russian officer, who had lost a portion of the urethra, near the middle of the penis, from a musket shot.

b. The suture, after previous cauterization, or refreshing the edges.

The simple suture, is the best operation in all cases where the fistula is sufficiently low down to be got at with facility. When additional means are necessary, it is not easy to determine whether we should employ cauterization of the edges, or merely refresh them with a cutting instrument: the former, however, may be had recourse to, in cases of vesico-vaginal fistula, with more advantage than in cases of division of the palate, when staphyloraphy is performed. The greatest difficulty in the use of the simple suture is, that, after refreshing the edges of the opening, the latter is apt to assume a rounded appearance; hence it is useful to touch the edges, before we apply the suture, with a hot iron, or a substance calculated to stimulate them powerfully.

Several surgeons recommend us to apply as few sutures as possible, and not to draw the threads too tight: I follow an opposite practice; it is necessary to excite adhesive inflammation along the whole edge of the wound, and that as quickly as possible, in order to prevent the noxious effects which would be produced by any infiltration of the urine.

Professor Lallemand has lately directed attention to an instrument which he has invented for the cure of vesico-vaginal fistulæ; this consists in an elastic silver catheter, furnished at one end with a hooked forceps, and which is intended to keep the edges of the fistula in contact after they have been cauterized. The instrument does not seem to me well calculated to obtain the end proposed; a solid union cannot be obtained by bringing the posterior edge of the opening in contact with the anterior one; the passage of urine is not sufficiently prevented, and the constant action of the spiral spring which keeps the forceps applied, has the disadvantage of cutting through the tissues before they have time to unite. Both Killian and Velpeau agree with me in this opinion.

3. Cure by the Taliacotian method.

Jobert succeeded in closing a large communication between the bladder and vagina, by transplanting a portion of tissue from the neighbouring parts and applying it over the opening. The skin of one of the labia majora, having been closely shaved, was dissected off, and united by sutures over the opening; the operation succeeded in the happiest manner, but it may be feared that the reproduction of hair within the cavity of the vagina, may produce several unpleasant inconveniences. The operation, however, may be varied in the following manner:

1st. By closing the opening with the mucous membrane of the bladder. 2ndly. By implanting a layer from the neighbouring membranes of the vagina.

The first of these methods is only applicable when the fistula is moderately large; when a small portion of the bladder projects through it, and, perhaps, is already adherent in several points. Here, by frequently touching the edges with the *tinctura cantharidis*, we may endeavour to excite adhesive inflammation; or, if it be thought necessary, the vesical mucous membrane may be drawn with a hooked forceps, a little more through the fistula. Should adhesion at length take place all round, the superfluous part is to be destroyed with the nitrate of silver.

The second method I would propose, is to transplant a portion of the vaginal membrane over the opening; this is applicable to cases in which the fistulous orifices are very large, where it would be almost impossible to bring their edges together by suture, &c.

Whenever the parietes of the vagina are destroyed in their whole thickness, the operation is to be performed in the following manner:—

The first difficulty which the surgeon encounters, is produced by prolapsus of the bladder, which commonly hangs down through the vagina; it must be carefully returned, and supported by a piece of soft sponge introduced into the orifice of the

fistula;—this done, one edge of the opening is to be seized with a hooked forceps and drawn forwards; the action of this instrument being aided, when necessary, by several others of the same kind; the surgeon next perforates, with a fine scalpel, the posterior part of the edge of the fistula, and pushes this instrument, with a sawing motion, through its anterior external edge; an assistant must keep the strip of tissue, thus removed, constantly on the stretch.

To obtain a broad surface for union, the vesical layer of the edge of the opening must be dissected away for a few lines from the vaginal layer, and when this is accomplished, the refreshing of the edges of the wound may be completed. It now remains to bring together the edges of the large opening which presents itself. For this purpose, I pass two strong metallic (lead) ligatures, by means of my instrument for split-palate, through the vaginal layer of the fistulous orifice, opposite its middle part, and about an inch distant from each other. The ends of the ligatures, which hang out through the vagina, are then twisted together, and in proportion as this is done, the edges of the wound are forced to approximate. When the tension of the vaginal parietes has been carried as far as prudence will permit, the surgeon proceeds to form the two lateral flaps, which are to close up the rest of the opening. Having previously emptied the rectum, and having introduced his left index finger into that intestine, in order to guard it, the surgeon makes an incision, commencing at the inferior and posterior part of the lateral wall of the vagina, and continues his incision forwards to the nympha; a similar incision is then made on the opposite side. The breadth of the portion of the vagina thus isolated, should not exceed one-third of the breath of the organ itself: when the incisions have been continued sufficiently deep and long, the ligature may be again twisted, and the surgeon will find that he now can bring the edges of the wound still closer to each other. The loss of substance is, however, still too great to allow immediate closure of the fistula, a condition necessary for cure; the surgeon must therefore proceed to "*dissect off the lateral flaps from the vagina*," and, having done this, completes his operation by uniting the edges of these flaps with the common suture. The vagina must now be washed out with cold water, the patient placed in bed, and a larger catheter introduced into the bladder.

Even should no union, or only a partial one, take place after the operation, we obtain benefit so far, that the large opening between the bladder and vagina is converted into a small slit.

Jobert says, "M. Velpeau advises us to close the fistulous orifice by the posterior wall of the vagina, which is to be brought forwards; but before we can judge of this method, we must wait until its author has practised the operation."

Vidal de Cassis has latterly put forward a very peculiar idea on the operation for the vesico-vaginal fistula; he proposes closing up the vagina altogether, and thus converting it into a second reservoir for the urine. In cases where the whole parietes of a portion of the vagina have been destroyed, and the bladder hangs down between the thighs, we certainly should be very fortunate if we could retain the urine by closing up the vagina; the objection made against it of the danger of exciting inflammation, &c. in the mucous membrane of the vagina, is of no value, for experience proves that the latter can bear the contact of urine without any inconvenience. The method is, evidently, only applicable to very large fistulæ; but the idea is ingenious, and I am anxious to hear more of the effects of an operation which bears some analogy to that of Fricke for prolapsus uteri.

I cannot close these observations without saying a few more words on the operation which I have found most practicable. The rectum must previously be well emptied. The patient is to be placed in the position commonly chosen for lithotomy, and five or six assistants are indispensable. A few minutes before the operation, I inject some cold water into the bladder, which, passing through the fistulous opening, has the effect of cleaning its edges from blood, while the latter are being refreshed with the knife, or of indicating the exact situation of the fistula should it be small. Having introduced the valved speculum, the surgeon seizes the vaginal mucous membrane, near the fistulous orifice, with a hooked forceps; then removes his speculum, draws down the parietes of the vagina, and removes a strip of membrane with his bistoury, so as to refresh the edges of the fistula.

When the opening is large, the vaginal edge must be separated to the extent of a few lines from the vesical edge of the fistulous orifice, in order to obtain a broad surface for union: when the fistula is very small, this is impossible; in such cases I remove a funnel-shaped portion of tissue, the middle of which corresponds with the fistula, while the apex terminates in the bladder; this gives a surface sufficiently broad for union. The wound is now cauterized, by employing the cylindrical speculum of Dupuytren, or of Kluge, and the sutures are applied on the second or third day, when the edges of the wound present a red, inflamed surface. When the parietes of the vagina are easily drawn down, I apply the interrupted suture with the fingers, by means of small, very long, and curved needles: but when the tissues are unyield-

ing, I am forced to employ needles, like those I use for the operation of split-palate, and to introduce them with a handle. The ends of the ligatures are easily tightened with the fingers; they may either be cut short, or left to hang out of the vagina. As soon as the patient has been placed in bed, an elastic catheter must be introduced into the bladder, and a short funnel-shaped tube into the entrance of the vagina; every half hour some cold water must be thrown up through both tubes, more with the intention of diluting the urine, and preventing its action on the edges of the wound, than as an antiphlogistic means.

The speculum must not be introduced for the first few days: on the fourth, fifth, or sixth day, the sutures may be removed by introducing a small speculum, and cutting them through with a long scissars.

Should any of the sutures have cut through the tissues without producing union, or if the operation have failed, the edges of the wound must be frequently touched with the tincture of catharides; should the latter means fail, as, indeed, it commonly does, the operation must be repeated again and again, as often as the patience and condition of the unfortunate woman will permit.

When the patient is young and strong, the after-treatment must be strictly antiphlogistic; general and local blood-letting during the first few days; in a word, I treat my patients, after this operation, as I would treat individuals labouring under a penetrating wound of the chest or abdomen; when cystitis sets in, I apply the leeches directly to the vagina.

The nourishment should simply consist of some mucilaginous drink; the only medicine I am in the habit of giving is some *oleum ricini*, with laurel water. If the patient be attacked with diarrhœa, I administer the *decoctum althææ*, or *emulsio amygdalina* with the above-mentioned laurel water.

It would lead too far were I to enter into further considerations on this point: it is enough to say that the operation is always a dangerous one, chiefly on account of the injury which is done to the bladder; the suture always producing more or less inflammation of the edges of the fistulous opening, or of the surrounding parts.

MECHANICAL DESTRUCTION OF CALCULUS IN THE BLADDER.

At a meeting at the Polytecnic School of the Academy of Sciences, M. Benique, M.D. has read an interesting memoir on the destruction of stone in the bladder, from which we extract the following particulars. After having compared together the various processes which have been employed for the destruction of the stone in the bladder, M. Benique concludes that the method of percussion is the most powerful, the most rapid, and the most simple. This method, however, has latterly been criticised in a very severe manner, and it was in order to investigate the objections then brought against it, that M. Benique undertook the experiments which we are now about to notice.

To destroy the stone by percussion, it is usual to seize it between the two blades of a steel instrument, which are forced nearer and nearer to one another by successive blows of a hammer. The volume of the instrument (forceps) is naturally limited by the diameter of the urethra. The resistance which the calculus offers is sometimes excessively great. Hence the importance of discovering a process which would enable us to break up the harder calculi with instruments of a small diameter.

The length of the operation sometimes acts in an unfavourable manner in the results; and hence any means of abridging it becomes a desirable improvement. To these questions we might add several others of minor importance, but the solution of all leads to the same object, the improvement of lithotripsy, and all must repose on a common basis, viz., the exact appreciation of the various elements which concur in producing the destruction of a calculus under repeated shocks of the hammer. As M. Beniqué justly observes, "we do not require any great nicety of calculation when we want merely to break up a body on an anvil, but every circumstance must be carefully weighed if we desire to determine a *minimum* for the diameter of the percutor, and the duration of the operation. In the action of a hammer-stroke M. Beniqué distinguishes three principal elements, which become particularly interesting whenever we would determine the *rupture* of the body which is struck.

1st. The body receives a kind of shock, or instantaneous pressure, measured by the mass of the hammer and its velocity.

2nd. The shock produces a number of vibrations, or oscillations, in the body, which tend to separate its particles.

3rd. Finally, the body will be more easily destroyed in proportion as its mass is smaller, and the force which holds it together less considerable.

Of the three facts just mentioned, the first alone seems to have attracted the attention of surgeons, but molecular vibration is a very powerful means of destruction. If we imagine a cylindrical portion of the body struck, taken off in a direction perpendicu-

lar to that of the stroke, the cylinder will be divided into small portions, oscillating with a variable degree of force, and during a variable time; these will experience alternate flexions (from *a* to *b* and *c*, *fig.* 1), similar to those we communicate to a bit of iron wire when we want to break it. Now we may suppose that these minute movements succeeding each other with rapidity, would act in an efficacious manner towards producing molecular disjunction.

Facts confirm this theoretical view. We can break a small cylinder of porcelain into a multitude of small parallel morsels by making it vibrate violently. We should, however, remark, that the effects of molecular oscillation are altogether under the influence of the nature of the body which vibrates; thus, any very elastic body, for example, a blade of steel, can support very considerable vibration without giving way; on the contrary, an inelastic body is soon reduced to atoms when its molecules are thrown into long-continued vibration.

Hence, when a calculus is seized between the teeth of the percutor-forceps, we attain a great advantage in favouring the development of molecular oscillation in it. The oscillation thus produced, will contribute to divide the body, without throwing any great stress on the instrument which grasps it; besides this, the mode of destruction will be most favourable, *i. e.*, the calculus will be divided into a greater number of small particles projected with the least force.

Before entering into an examination of the manner in which the hammer should be employed to obtain the above-mentioned result, M. Beniqué asks what should be the mass of the hammer employed; and here we cannot help drawing attention to the superiority of the well-educated physician, thoroughly acquainted with all the accessory sciences, over the mere dispenser of drugs, who thinks the whole of the healing art consists in observing the signs of disease and administering their remedies.

The weight of the hammer.—Why does a blow struck on the percutor with a small hammer, produce the destruction of the stone more easily than a blow of the same force, but struck with a heavier hammer?

The first time the author observed the above fact, he was far from suspecting its extreme importance in the question of lithotripsy. The advantage of small over large hammers, might have been deduced, *à priori*, from a consideration of the laws which direct the communication of motion; however, we can make them intelligible without having recourse to any mathematical formulæ.

In the operation of lithotripsy, we have not to act on a stone reposing on a fixed point, or an anvil; for example, instead of an immoveable basis of this kind, the force of the stroke is sustained by the female branch of the instrument. Its form is that of an obtuse angle, one side of which is contained in a hollow tube, while the other supports the calculus closely pressed against it. Now, when the hammer strikes the male branch, the latter communicates a shock to the calculus, which, in its turn, is forced against the female branch, and gives rise to a degree of flexion in the steel blade, rendering the angle still more obtuse or open. This occurs at every blow of the hammer, but the female branch recovers its primitive form after each blow, in virtue of its elasticity; and it is of the utmost importance to observe, that these slight movements of flexion have the effect of withdrawing the body from the striking mass, or hammer. Let us now cast a rapid glance on a few of the most familiar facts which pass before us every day, and which, at the same time, are intimately connected with the present subject.

Suppose a spherical mass of stone, suspended in the air by an iron chain or wire; we want to break the stone by successive shocks; we take two hammers; one very heavy, which is moved slowly; the other very small, but, impelled with a velocity, which compensates the mass of the former: in short, the dynauometrical value of both is the same; but will they act equally on the spherical mass of stone? Certainly not. The action of the smaller hammer, will produce a breach of continuity much sooner: the large hammer will merely displace the body, without injuring it. The communication of movement from one body encountering another with a shock, requires a certain lapse of time; the small portion of the body which is struck, tends to displace itself at the moment that all the other portions are still in a state of perfect rest; hence, results a separation of the molecules of the body in all cases where this cohesion is not excessively great, and when the velocity of the impinging body is considerable. We have seen how the effects of atomic vibration are modified by elasticity: this latter property also exercises great influence on the destruction of bodies by a sudden shock. When the elasticity of the body struck is feeble, its atoms, or particles, are separated from each other with facility; if, on the contrary, it be highly elastic, a bar of steel for example, the point which is struck begins to move before the others, but, instead of separating itself from them, it merely gives way for an instant, and then returns to its original position and relations, in consequence of its elasticity,—unless, indeed, the

velocity of the striking body be immense, in which case, the effects of elasticity are overcome, and the body is broken across. We might add a multitude of familiar facts in confirmation of those just mentioned; thus, when a workman wishes to drive home a nail, he always chooses a hammer with a small head; but it is sufficient to mention a principle, justified by thousands of experiments, that, whenever we would strike with effect on any body, we should invariably employ hammers light in proportion as the resistance which supports the body acted upon is insignificant.

In the practice of lithotripsy, then, small hammers are preferable to large ones. 1st. Because they destroy the calculus with greater ease. 2nd. Because they expose the operator less to the danger of breaking his instrument in the bladder; a grave accident which has already occurred. 3rd. Because this method is the most advantageous.

It is evident that we cannot diminish the weight of the hammer excessively, without, at the same time, rendering its action slow and inefficacious. To ascertain the minimum weight, the author has made a great number of experiments, and found, that a hammer of the weight of an ounce, is the best suited for the destruction of calculi in general, even of the largest; should the stone be extremely hard, its weight may be carried to two ounces, but never beyond this. When instruments of two lines are employed, the weight of the hammer will vary between one ounce, and half an ounce, and the latter will be applicable to the immense majority of cases.

Finally, in some cases, in operations performed on children, for example, we might employ hammers of from 2 to 3 drachms.

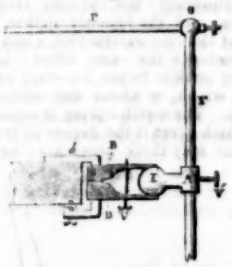
The handle of the hammer.—Amongst a thousand other inconveniences, a metal handle would present the important one of arresting the vibrations developed in the body struck; one composed of whale-bone is much preferable. It is extremely difficult to strike equable and precise strokes with a very small hammer held in the hand. This consideration alone would have induced M. Beniqué to employ another agent, even if he were not anxious to determine exactly the degree of force with which each stroke of the hammer acts on the percussor. For this purpose he proposes an instrument, of which we shall now endeavour to give as clear a description as possible; like many other surgical instruments, it may, perhaps, be open to the objection of being complicated, but the idea on which it is founded seems an excellent one, and the instrument itself may contain the germs of several practical improvements.

Description of the new apparatus.—A vice is fixed to any kind of table: the vice embraces two iron plates, solid, and touching one another when they are fixed in the vice, but separated at the other end, where, in turn, they embrace a steel globe, well cut and tempered; the globe terminates in a neck furnished with a socket, and in the socket passes a vertical rod, to whose superior extremity the percutor is attached by a double open socket. Before proceeding any further, we shall endeavour to make this more clear by a drawing which the author has had the kindness to make for us (*see fig.* 2).

Fig. 3.

This species of fixed point might be equally employed in cases where the operator prefers practising percussion with the hand. The point, *o*, or summit of the rod, is capable of executing very extensive movements. When the screw at V (*fig.* 2.) is not tightly screwed, the steel sphere moves between the two plates which embrace it, and the neck in which it terminates can, consequently, describe the arch of a circle whose centre is I, and the diameter I A: besides which, we have the ascent or descent of the rod, F, in the socket. The open socket at *o*, may, therefore, seize the instrument in a variety of positions, as soon as the proper one is chosen; the instrument is fixed by turning the two screws at V and v. In this case, we may strike the male branch of the instrument, each shock of the hammer producing only a very slight flexion of the rod; but if we desire to avoid even this feeble displacement, we have only to add a moveable prop, whose length is regulated by the screw at *c* (*fig.* 3.)

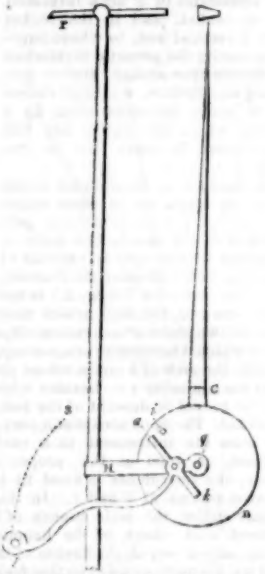
Fig. 2.



The reservoir of force for moving the hammer is a watch-cylinder, of an inch in diameter, B (*fig.* 4.) enclosing a watch-spring. The hammer is fixed at c to this cylinder, and the force of its shock exactly measured by the distance to which we draw it back, the spring being the more tense in proportion to the distance. To make the hammer blows succeed each other with great rapidity, the following mechanism is adopted:—The cylinder is furnished with a lateral pro-

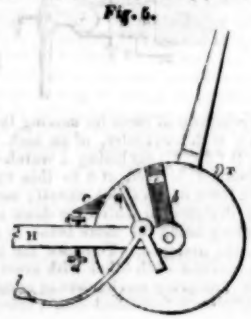
jection in steel, r; a small bar is fixed to the cylinder, also, in such a manner that it can revolve on an axis, near q, which is different from the axis, q, of the cylinder; the bar is

Fig. 4.



rotated by the winch, *l*. Now, when the winch is turned round in the direction, *l*, *s*, the bar meets the projecting point, *i*, pushes it, and the whole cylinder, before it, then lets it go suddenly; the cylinder recovers its position, and the hammer strikes (*fig.* 4). Each of the two extremities, *q* and *k*, of the bar, produces the same effect; hence the hammer strikes twice for every revolution of the winch, or about 400 strokes in the minute. The watch-spring is mounted by a key which gives it the degree of tension the operator may think necessary; he can also

Fig. 5.



vary the force of the hammer, by varying its position. The little projection, or button *i*, which the bar meets as it revolves, is capable of being brought near the centre of the cylinder, or of being removed from this centre, by turning to the right or left the little button, r (*fig.* 5), which makes it play in the groove, *b*. When the projection, *i*, is brought near the centre, the hammer does not strike before it has retired far back; when, *i*, is far from the centre, the inverse takes place (*see fig.* 5).

Finally, in order to make the stroke of the hammer as efficacious as possible, it is necessary to make it rebound immediately after the shock, and not strike with a dead weight. This is effected by placing a small projection, *c* (*fig.* 5), on the circumference of the cylinder, which arrests the shock at the moment it comes in contact with the extremity, *f*, of the screw, *d*, by turning which we can arrest the blow as we wish, and regulate the force with which the hammer strikes. The percutor itself is reduced to a degree of simplicity which, in some measure, compensates for the complexity of the apparatus just described; it differs from an ordinary catheter merely in the curve it forms; a small spring, *p* (*fig.* 6), fixed at *o*, *w*, serves to keep the two branches in contact with the stone, which thus cannot escape during the interval of the blows.

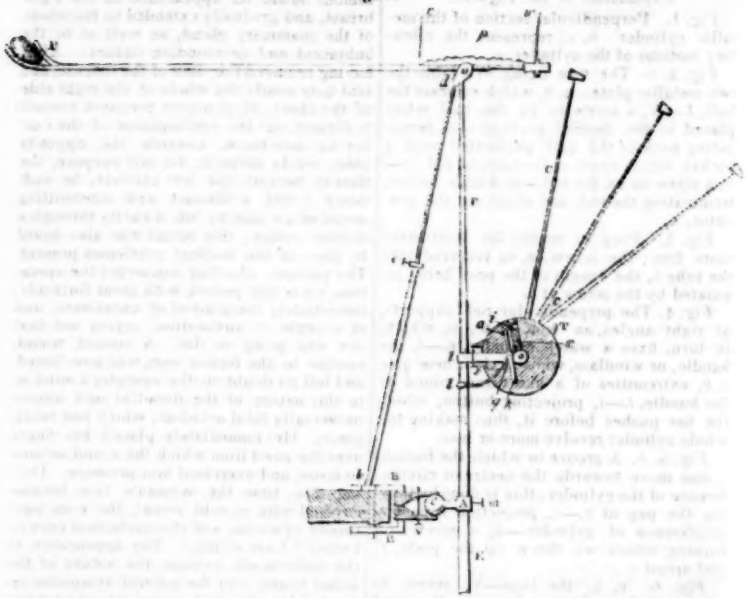
As soon as the stone has been seized, the perpendicular rod must be fixed in the extremity of the steel-ball, which, in its turn, is fixed by a vice, as already described; the apparatus is now all arranged; the handle of the cylinder is turned, and the hammer strikes; the first blow should be feeble, the force being gradually increased.

It is scarcely necessary to add, that by substituting a dynanometer in the place of the percutor, we can obtain an exact measure of the force employed.

M. Beniqué is not a partizan of the method of crushing, and for the following reasons:—The operation of lithotripsy consists in the destruction of an inelastic body between the teeth of an elastic one. We are naturally led to ask ourselves, "What would be the result if we endeavoured to break an elastic body between the branches of an inelastic one; stone for example?" From what has been said, it is evident that the instrument would give way under the force of the vibrations, without acting on the body it had seized; we should therefore avoid such vibrations as much as possible, by approximating the two blades of the inelastic instrument slowly, and without any shock. Hence the problem of crushing with the screw is exactly the inverse of that of lithotripsy. The hammer is the more advantageous instrument in every case, except where the body to be destroyed happens to be very elastic.

One of the great objections against crushing a calculus with pressure by the screw, is the difficulty of ascertaining the force necessary, and regulating it according to circumstances; the necessity of some regulating power is the more necessary, because instruments give way, or bend, with great facility when the screw is employed. For

Fig. 6.



those surgeons who still prefer employing this latter method, the author proposes a means of avoiding the danger resulting from too great force; this consists in interposing a very powerful spiral spring between the percutor and the screw, and then seizing a bit of iron between the teeth of the former, on turning the screw, until the instrument begins to bend; then note the effect produced on the spring; this effect will give the measure of a force which we should never attain in operating on the living body.

But to return to percussion. In the process described by M. Beniqué, the danger of breaking or bending the instrument becomes excessively small, or almost null: it is a principle very generally admitted, that if a metal be able to support one shock, it will support a given number of similar ones; but, for this, the temperature of the metal must continue unchanged; the metal itself must not be too hard; the force of the different shocks must be identical,—conditions, all of which we find united in the instrument before us. However, it is well known, that lapse of time produces certain modifications in the structure of all metals, which have the effect of rendering them less solid; hence, before performing any operation on the living body, it will be always well to try our instrument, and ascertain its force.

After a few more observations on the manner in which the stone is destroyed with his instrument, the author concludes with the following propositions:—

1. The application of a dynanometer to instruments intended to pulverise, or crush, a calculus, removes all danger of breaking or bending the instruments in the bladder.

2. Percussion should be practised with a hammer, which, in a great majority of cases, need not exceed the weight of half an ounce.

3. The method described enables us to break up stones of very great solidity, such as white marble, pyrites, &c., with instruments of less than two lines in diameter.

4. The destruction of the calculus is rapid.

5. It is effected in the most commodious manner.

6. Finally, this method is incontestibly

the one which permits the employment of very small instruments, with the greatest effect, and the least danger.

Explanation of the Figures.

Fig. 1. Perpendicular section of the metallic cylinder: *b*, *c*, represent the vibratory motions of the cylinder, *a*.

Fig. 2. *b*, The vice fixing to a table the two metallic plates, B, B, which embrace the ball, I.—V, a screw to fix the ball when placed in the desired position.—A, terminating neck of the ball, perforated with a socket, which receives the upright rod, F.—V, a screw to fix the rod.—O, double socket, terminating the rod, and receiving the percutor, P.

Fig. 3. Prop to render the instrument more firm; the screw, *d*, is received into the tube *b*, the length of the prop being regulated by the screw at *c*.

Fig. 4. The perpendicular rod supports, at right angles, an iron plate, H, which, in turn, fixes a watch cylinder, B.—*l*, the handle, or windlass, whose axis is near *q*.—*a*, *k*, extremities of a bar turned round by the handle, *l*.—*i*, projecting button, which the bar pushes before it, thus making the whole cylinder revolve more or less.

Fig. 5. *b*, A groove in which the button, *i*, can move towards the centre or circumference of the cylinder; this is done by turning the peg at T.—C, projection from circumference of cylinder.—*d*, a screw, on turning which we throw up the plate, *f*, and arrest *c*.

Fig. 6. B, B, the vice.—V, screw to fix the blades which embrace *c*, the steel ball.—A, the neck of the ball, receiving the upright rod, F, E, which is fixed by the screw, *m*.—*l*, a steel plate fixed at right angles to the rod, and supporting the cylinder Z.—*l*, the handle or windlass which turns the bar, whose extremities are marked *a*, *k*.—*q*, the axis of this handle.—*x*, the groove.—*i*, the projecting button.—T, a peg which removes or approaches the button towards the axis of the cylinder.—*b*, a screw, by turning which the projecting plate is arrested, and the stroke of the hammer consequently modified.—*c*, *c*, hammer.—*p*, a spring which keeps in contact the two blades of the percutor, P.

AMPUTATION OF THE BREAST.

INTRODUCTION OF AIR INTO THE VEINS.

RECOVERY.

At a late meeting of the *Royal Academy of Medicine*, at Paris, M. Amussat communicated the following remarkable case of recovery, after the introduction of air into the veins.

On Saturday, July 1st inst., M. Amussat removed the right breast of a woman, forty-seven years of age; the patient was originally strong, and enjoyed good health, until two years previously, when a small scirrhus tumour made its appearance in the right breast, and gradually extended to the whole of the mammary gland, as well as to the subjacent and surrounding tissues. After having removed the mass of the disease, and laid bare nearly the whole of the right side of the chest, M. Amussat prepared himself to dissect out the prolongation of the cancerous substance, towards the opposite side: while dividing, for this purpose, the tissues beneath the left clavicle, he suddenly heard a distinct and intermitting sound of air passing into a cavity through a narrow orifice; this sound was also heard by three of the medical gentlemen present. The patient, who had supported the operation, up to this period, with great fortitude, immediately complained of uneasiness, and of a sense of suffocation, crying out that she was going to die. A second sound, similar to the former one, was now heard, and left no doubt on the operator's mind as to the nature of the dreadful and almost universally fatal accident, which had taken place. He immediately placed his finger over the point from which the sound seemed to issue, and exercised firm pressure. During this time the woman's face became covered with a cold sweat, the eyes were turned upwards, and she exclaimed once or twice, "I am dying." The appearance of the unfortunate woman, the nature of the sound heard, and the general symptoms indicated that air had passed into the venous system; M. Amussat, therefore, lost no time in endeavouring to expel it by compressing the parietes of the chest, while he left the orifice of the wounded vein open. Having repeatedly reduced, by compression, the capacity of the chest, he directed one of the assistants to press with his finger over the venous orifice. After the lapse of a few minutes the patient began to feel somewhat better, the sense of suffocation diminished, and M. Amussat terminated the operation by removing several diseased ganglia near the brachial plexus and axillary vessels; he then arrested the hæmorrhage, by submitting the arteries to "torsion," and, by way of precaution, passed a ligature through the orifice of the vein into which the air was supposed to have entered. The wound was dressed in the ordinary manner.

On the above case M. Amussat remarked, that although several other analogous ones had been observed, yet he believed this was the only one where the patient survived. The fortunate termination in the present instance was owing to his having so quickly discovered the nature of the accident which had taken place; and this, again, depended on his having been familiar with the pecu-

liar sound which is produced whenever air passes into a wounded part, an accident that he often witnessed and studied while operating on living animals.

CURE OF GOUT BY COLCHICUM, EXTERNALLY APPLIED.

To the Editor of THE LANCET.

SIR:—The following case, though an isolated one, of gout treated with colchicum, *applied locally*, affords, I think, evidence sufficient to excite attention to the subject; and as I am not aware of having been anticipated in what I venture to consider to be a new mode of exhibiting the remedy, I send this for insertion in your valuable Periodical, in the hope that my brethren will prosecute the subject, and communicate the results of their observations through the pages of THE LANCET, which is, confessedly, a great medium of medical communication in this our day.

A gentleman, ætat. 48, of regular and abstemious habits, was attacked, for the first time, severely, by inflammatory gout, in the first joint of the great toe of the right foot. Leeches and cold water, succeeded by spirit lotion, afforded immediate relief, and in a week the patient was able to go out, wearing a large cloth shoe. Three years subsequently, a similar attack seized the great toe of the other foot. Leeches, on this occasion, aggravated the symptoms, and protracted the period of convalescence to three weeks; tenderness was felt in the part for nearly two months after. Colchicum was taken at the time of the second attack, but not at the first. I gave, almost invariably, the tinct. seminum, made according to the Pharmacopœia, London.

About four months ago, the same gentleman fell down a flight of stairs, and dislocated and fractured the left fibula, eight inches from its malleolar extremity; fortunately, a reduction both of the fracture and the luxation was accomplished *instanter*; a bandage and splints were applied, and he was taken home without experiencing any motion of the injured parts. Thirty-six hours after the accident, gout appeared in the great toe of the wounded foot, and increased with such violence, that, from intense suffering, at the end of six hours, the patient became exhausted, and slightly delirious. Every application that could be thought of was used without affording any relief; on the contrary, each appeared to increase the pain; even colchicum, taken internally, totally failed. As a dernier resort, I added ℥ij of tinct. *sem. colch.* to a ℥iv spirit lotion last used. The effect was magical; immediate relief was felt, and, after two or three applications, the patient fell asleep, slept soundly for four hours, and awoke free from pain, nor has he had a return of gout since, save some compunctious twitchings, once or twice, which were immediately removed by a few drops of the tinct. colch. applied to the part, through the stocking. He has recovered from the effects of the accident, and walks nearly as well as ever. I am, Sir, your's, &c.

T. W. WANSBROUGH.

Fulham, July 15, 1837.

I take this opportunity of informing you, that I was appointed by the Poor Law Commissioners, to the office of Registrar of Births and Deaths, for this district, *unsolicited*; and that I *have resigned it in favour of the parish clerk, to whom it properly appertains, ex-officio*.

A Treatise on the Diseases and Injuries of the Larynx and Trachea. By FREDERICK RYLAND, *Surgeon to the Town Infirmary of Birmingham.* London, 1837. Longman & Co. 6 plates. 8vo. pp. 318.

THE volume now before us is founded on an essay to which the "Jacksonian Prize," for 1835, was awarded. Taking that essay as a ground-work, and enlarging it with the results of his experience since that time, and with the various facts and observations which he was diligent enough to find scattered throughout the different periodical publications, Mr. Ryland has produced a good-sized volume, which certainly confers much credit on himself, and gives a proof that he has cultivated medicine with ability and zeal.

The contents of the work may be distinguished into two parts; the *first*, which is preceded by some remarks on the anatomy and physiology of the larynx and trachea, treats of the diseases of those two organs. The *second* part embraces injuries of the trachea and larynx, and is concluded by a well-written chapter on the operations of bronchotomy. In this arrangement the author has followed very closely the plan adopted in an essay on the surgical pathology of the larynx and trachea, recently published in Dublin.

Diseases of the Larynx and Trachea.—Under this head the author examines, successively, acute laryngitis; œdema of the glottis; erysipelatous laryngitis; chronic laryngitis; croup; diphthérite; spasm of the glottis; hysterical affections of the larynx; and, finally, ossification and tumours affecting the larynx and trachea. The sur-

gical portion of the work embraces wounds of the larynx and trachea; injuries from hot water, acids, or flame; and foreign bodies in the air-passages.

Symptoms of Laryngitis.—Acute laryngitis although, as the author justly remarks, one of the most formidable of the inflammatory diseases to which the human frame is liable, has not been described by Mr. Ryland with the fulness and care which the importance of the subject required. What he does say, however, on the subject is good, and only makes us regret the absence of further details. The complaint often commences with symptoms which are similar to those of cynanche tonsillaris, and, like other inflammatory affections, is preceded by rigors. At an uncertain period after the agression of the attack,

"Pain of a dull character is felt at the upper and front part of the throat, attended with a feeling of constriction; the larynx is found to be sore on pressure; there is slight but frequent cough, unaccompanied by any expectoration; voice harsh and sharp. An examination of the fauces shows them, in most instances, to be inflamed, and very often, by pressing the tongue as much as possible downwards and forwards, the epiglottis may be seen erect, thickened, and of a deep red colour. Besides these, which may be considered as the local signs of acute laryngitis, there are present, thirst, great heat of skin, and a full and rapid pulse, which evince the existence of inflammatory fever. The symptoms that succeed are all indicative of an obstruction to the passage of the air into the lungs in the first instance, and afterwards of an imperfect arterialization of the blood. The respiration becomes impeded and laborious, the act of inspiration requiring an unusual muscular effort, whilst expiration is at first accomplished with comparative facility. As the disease advances, and the aperture of the glottis becomes narrower, the symptoms of strangulation come on with frightful rapidity: the countenance is flushed and extremely anxious—the eyes starting from their sockets—the lips livid—respiration can scarcely be performed—the voice is gone—the pulse weak and intermitting—the patient sits upright in bed, with open mouth and out-stretched neck, grasping the bedclothes to assist him in drawing his breath, or throws himself across the bed in the attitude, and with the feelings, of despair. Muttering delirium, followed by coma, is generally an attendant at the close of life."

The general characters of the disease, then, are,—

"An alteration of the voice, which becomes raucous and hoarse in the first instance, sharp and hissing as the disease advances, and towards its last periods totally extinguished; a short, painful, and sometimes convulsive cough; soreness and a sense of constriction about the laryngeal region; and a constantly increasing difficulty of breathing, exacerbated by the occasional occurrence of spasm of the glottis, and, if unchecked, terminating in suffocation."

Diagnosis.—There are few diseases with which acute laryngitis is likely to be confounded. From asthma it may be distinguished by the sense of constriction about the larynx; by the manner in which the latter organ is drawn down at each inspiratory effort; and by the peculiar stridulous noise which accompanies each inspiration. A foreign body in the larynx will produce many of the symptoms of inflammation of this organ, but distinctive characters will be easily observed in the suddenness of the attack, the absence of fever at the commencement, and the difficulty which equally attends both inspiration and expiration, whenever the symptoms depend on the presence of an extraneous body in the air passages. These are the only circumstances to which Mr. Ryland refers, as being at all capable of embarrassing the physician in his diagnosis. He has, however, omitted to draw a parallel between acute laryngitis and true croup,—an omission which is the more notable from the fact that the only case of the former disease which is given by the author from his own observation, was mistaken by him for one of croup. The remaining three cases, which illustrate the progress and termination of acute laryngitis, are all taken from foreign authors. This is a practice of which the author of the present work has been somewhat too fond, and is one of which we cannot approve. Reference to cases already published is frequently necessary. It may sometimes be desirable to lay before the reader an analysis of rare and important observations. That against which we wish to protest is, the swelling out of a work with second-hand cases,—the habit of repeating observations, with many of which, perhaps, the reader is already familiar. Medical knowledge can only be extended by adding new facts to old ones, not by repeating the same facts over and over again; by accumulating the experience of ages, and not by despatching

a single case on its travels from Greece to Rome, from Rome to France, from France to England, and from one author in that country to another, somewhat after the manner in which Mr. Bob Sawyer's four-ounce bottle travelled about Bristol. It is but justice, however, to Mr. Ryland, to say, that nearly one half of the cases which are given in his work are original, and that such as do not belong to himself have been judiciously selected from the best authors.

Causes.—The causes of acute laryngitis are similar to those which produce other inflammatory affections of the air-passages. As to the predisposing influence of sex or age, our author contents himself with remarking, that laryngitis, without effusion of coagulable lymph, is a disease which is almost peculiar to adults, and that there are very few cases on record in which it has attacked children, or persons under the age of twenty. We believe this latter assertion to be erroneous. We possess quite as many observations of acute laryngitis affecting children of from two to fifteen years of age, as we do of cases of croup, and if the former disease have hitherto been but seldom noticed by writers on the diseases of children, it is because they have almost invariably confounded it with true croup. We would also draw Mr. Ryland's attention to a complaint which he has altogether omitted to mention, viz., subacute laryngitis, which so often attacks children (it is true, under certain annual constitutions), during their convalescence from measles or small-pox, and which is characterised by hoarseness of voice, and barking cough, without any difficulty of breathing, and with but little constitutional disturbance.

"*Pathology.*—The usual post-mortem appearances are an inflamed and thickened state of the epiglottis, this organ standing erect, so as to leave the cavity of the larynx quite uncovered; and upon a more minute examination the increased thickness of the epiglottis is found to be produced chiefly by infiltration of the sub-mucous tissue. The edges of the superior orifice of the larynx, which are formed by the fold of mucous membrane that connects the summits of the arytænoid cartilages with the epiglottis, are likewise reddened in various degrees, and so much infiltrated with a serous, a sero-purulent, or a purulent fluid, as to obstruct, in a manner more or less complete, the entrance into the larynx."

"In some cases the disease expends itself entirely upon the epiglottis and the lips of the glottis, but generally there is some degree of redness and an œdematous state of the parts of the larynx situated below the rima."

"One of the most important differences between the pathological effects of acute laryngitis and œdema of the glottis is that, in the former disease, the epiglottis is always found more erect than natural, redder in colour, and thickened, in various degrees, by the infiltration of serous or sero-purulent fluid, whilst in the latter disease it never exhibits any degree of redness, and very seldom any augmentation of bulk."

Treatment.—From the rapid manner in which this inflammatory disease so often marches, it must be attacked, as early as possible, with the most vigorous measures. General and local bleeding, mercury, tartar emetic, in a word, the most powerful antiphlogistic measures must be had recourse to. Unfortunately, experience demonstrates that the means which are usually resorted to for arresting its progress, are ineffectual in a very great number of cases; hence our author advises practitioners to have recourse to bronchotomy, as presenting the only reasonable chance of success, the moment he finds that antiphlogistic measures fail in relieving the patient. This advice is sound, and is supported by the authority of Louis, and several English surgeons. The operation will no doubt sometimes fail, but here, as in the case of croup, the want of success, in a great measure, depends on bronchotomy having been deferred to too late a period of the disease.

Œdema of the glottis is the next affection of which the author treats:—

"This disease is characterised by a constant and increasing impediment to respiration, the act of inspiration being always attended with difficulty and distress, whilst expiration is performed with freedom; by a feeling of constriction in the larynx, and of impending strangulation, as if the upper part of the windpipe were closed by some foreign body in that situation;* by the state of the voice, which is at first hoarse, then sharp and hissing, and afterwards croupal; by a dry, hoarse, and convulsive cough, and by the occurrence of frequent accesses of suffocation, during which the distress and agitation of the patient are beyond description. There is very little pain or difficulty in swallowing, scarcely any soreness on pressure in the laryngeal region, and no fever."

"Most commonly the first indications of

* Cruveilhier, Dict. de Med. Pract., art. Laryngite.

the existence of œdema of the glottis are a sense of uneasiness in the larynx and a continual effort on the part of the patient to expel, by means of a forcible expiration, mucus or other matters which appear to him to be clogging the laryngeal aperture; he also frequently endeavours, by repeated attempts at deglutition, to disembarrass the upper part of the throat of some extraneous body which he imagines to have lodged in that situation. The voice is, at the same time, rather hoarse, but respiration remains for the present unimpeded. In the course of a few hours, or of two or three days, according to the rapidity with which the disease advances, the voice becomes hoarser, or sharp and stridulous, and there is occasional difficulty of breathing, more particularly in the act of inspiration; this is not permanent, however, but is succeeded by strong expiratory efforts, which, by expelling a little glairy mucus, soon render the respiration tolerably free. If the disease remain unchecked, the dyspnœa, in a short time, becomes permanent, or offers only slight remissions: the patient sits upright in bed, with the head thrown back, the shoulders elevated, and the whole of the respiratory muscles convulsively engaged in endeavouring to draw air into the chest, whilst the power of expelling the air with facility still continues. This almost constant dyspnœa is aggravated from time to time by accesses of suffocation, which occur more frequently as the obstruction to respiration increases, and the patient dies either in one of these attacks, or, as more commonly happens, in the intervals between them, when we should expect that the air, by penetrating into the chest, would re-animate and restore him."*

The distinctive signs of the disease are, the impeded power of inspiring, coupled with an almost total absence of pain, heat, and soreness, in the region of the larynx: the patient also feels a peculiar sensation of fulness about the upper part of the throat, conveying the idea of a foreign body in that situation, which he constantly attempts to swallow.

Causes of Œdema of the Glottis.—There are two varieties of œdema of the glottis; one is *primitive*. The causes of this variety are not, according to Mr. Ryland, at all understood, although he distinctly pronounces it to be of an inflammatory nature. The *secondary* form is that which is occasioned by some disease of the larynx, or the adjoining parts, such as ulceration of the mucous membrane, and of the larynx; necrosis of the cartilages, and purulent collections in their vicinity.

The pathological changes of this disease are thus described by our author:—"The sides of the cavity of the glottis are occupied by two smooth, rounded, semi-transparent swellings, which obstruct its area more or less completely, according to their development.

"These swellings are generally of a pale yellow colour, and devoid of apparent vascularity; they are formed by the effusion of serum into the sub-mucous tissue of the lips of the glottis, and of the folds of mucous membrane which connect the arytænoid cartilages with the epiglottis, and into the adherent surface of the mucous membrane itself in the same situation. The œdema is seldom confined to these localities, but extends to the base and lateral edges of the epiglottis, and to the mucous membrane lining the cricoid cartilage. The posterior and external surface of the larynx, the base of the tongue, and the tonsils frequently participate in the disease."

"The fluid that produces the tumefaction in the sides of the glottis is limpid serum in those cases of the disease which have terminated rapidly; and where the affection has produced its effects more tardily, the effused fluid is of a sero-purulent nature. In both instances the deposition takes place into the meshes of the cellular structure of the adherent surface of the mucous membrane and of the sub-mucous tissue; and when, after death, incisions are made into the œdematous swellings, the fluid exudes slowly and gradually, and continues to flow out till the parts collapse nearly to their natural size."

The treatment of the *primitive* form of œdema of the glottis must generally be local, for the disease itself is almost always a local one.

"General bleeding will rarely be required in this disease; a plethoric habit and a congested state of the lungs or brain may demand its performance, but œdema of the glottis will seldom be found in conjunction with such a condition of the circulation. Medicines of a depressing nature, such as tartar-emetic, are of little service, because no general arterial excitement prevails. Our chief reliance must be placed on the local detraction of blood by means of a large number of leeches applied in the vicinity of the larynx; on the use of blisters, which should never be put on the front of the neck, as their operation will interfere with the subsequent performance of tracheotomy, should such a step be necessary, but on the back of the neck, or the upper part of the chest; and on the internal administration of large doses of calomel, which,

* Bayle, Diction. des Sciences Medicales, art. Œdème de la glotte.

either by their purgative effect, or by their specific action on the general system, tend to check the inflammation in the glottis, and to promote the absorption of the effused fluids. These remedies can only be of use during the early stages of the disease, and experience shows but too plainly that even then we have far more reason to anticipate failure than success."

Here, as in acute laryngitis, the author advocates an early recourse to the operation of bronchotomy, the beneficial effects of which he illustrates by an original case. He also notices the plan, proposed by Bayle and Thuillier, of introducing a tube into the larynx, and very justly condemns it. Speaking of M. Lisfranc's proposal "to make small punctures in the œdematous swellings, to allow the escape of the fluid," he says that it is fantastic, very difficult, if not impossible, of accomplishment, and more likely to increase than diminish the existing mischief. In speaking so decidedly, we fear that the author has acted without cognizance of facts, for, unless our memory be completely fallacious, there are several cases on record which testify to the good effects produced by scarification of the tumid edges of the glottis.

Croup.—Passing over "Erysipelatous and Chronic Laryngitis" we arrive at Chapter IX., which treats of the important subject of croup. So much has already been written upon this disease that we cannot expect to receive new or remarkable facts from any author, unless he have enjoyed an extensive opportunity of observing that disease when it occurs sporadically, and, above all, unless the leisure and previous education of the observer fit him for exercising an accurate and faithful scrutiny of the facts which are before him.

Symptoms of Croup.—The description of symptoms given by Mr. Ryland is excellent, though concise. Indeed the whole of the chapter on this subject is well written and clear. We particularly praise him for the decided manner in which he speaks on the nature of the disease, and for his rejection of the spasmodic, nervous, catarrhal, and other varieties, all of them being fictions of writers, which are only calculated to lead off the attention from the true and invariable essence of the complaint.

Forms.—Mr. Ryland divides croup into three forms, "the *laryngeal*, the *tracheal*, and the *bronchial*." This distinction was first made by Jurine, of Geneva, who tells us that the first form is characterised by the suddenness of the attack, and the rapidity of its progress, by the prompt development of spasmodic symptoms, by painful sensations in the region of the larynx, and by the speedy death that ensues, unless the disease is checked by appropriate treatment. In tracheal croup the progress of the disease is slower, the remissions are more complete, and the cough and suffocative attacks are not so frequent, while there is generally less pain on pressure in the air passages.

The peculiar symptoms which attend bronchial croup are more doubtful. It is described as commencing by symptoms of catarrh, attended with sibilous respiration, and the croupy character of voice, and terminating, generally, either in death, or in the expectoration of a great quantity of thick mucus.

The facts noticed by our author relative to the causes, the mortality, the influence of age and sex, the nature of the croupy secretion, and the pathology and treatment of the disease, being, for the most part, taken from other writers, we shall not refer to them here. We prefer turning at once to the question of tracheotomy, which Mr. Ryland estimates in the following sentence:—

"With regard to the general results of tracheotomy, when performed for the cure of croup, I have no hesitation in saying that they are so unfavourable as to warrant us in the strongest condemnation of it under almost every conceivable circumstance."

We cannot now enter into a lengthened refutation of this assertion, but a few observations on the subject are necessary. In the first place, we ask how it comes to pass that Mr. Ryland, who strongly advocates the performance of bronchotomy in cases of acute laryngitis, rejects the same operation in cases of croup? In what does croup differ from acute laryngitis? Simply in the tendency to produce a false membrane. Both are equally inflammatory diseases; in both the chief danger arises from the spasmodic attacks of the larynx, and, from the accesses of suffocation, producing, as a consequence, more or less cerebral disturbance. In fact, each disease so closely resembles the other, that they have been confounded, in practice, by the best physicians, and many authors of the present day comprise them under the same description. Even Mr. Ryland himself details a case in which he

mistook acute laryngitis, affecting a boy aged two years and nine months, for croup, and regrets that he did not perform the operation at an early period, which would, perhaps, have restored the child immediately to a state of comfort, and very soon to health. This, surely, is paying a strange deference to theory. In the last stage of croup it is true that tracheotomy cannot be expected to produce *very* favourable results, but we shall presently show how little foundation the author has for the assertion, that at this period "tracheotomy cannot cure it,—cannot even be expected to afford temporary relief."

The following assertion, which we find at page 158, is still more erroneous than the former:—

"In the earlier stages, before lymph has been poured out, and when the mucous membrane is red and tumid, nothing but an aggravation of the inflammation can be expected from the operation in question; besides, we are not justified in having recourse to it whilst so many other remedies are in our possession, unless it can be shown that the probability of success is very great."

With regard to the first part of this sentence every thinking man will be apt to ask, "If an operation can only increase the inflammation in the first stage of croup, why should it not have the same effect in the first stage of acute laryngitis?" And we demand of Mr. Ryland by what means he would distinguish this latter complaint, occurring in a young child, from the first stage of laryngeal croup.

With regard to the second part of the sentence just quoted, we have to observe that an estimation of the value of tracheotomy in croup can only be formed by a reference to facts, which latter must be carefully examined and weighed. We are sorry to say that Mr. Ryland seems to be only partially acquainted with these facts. As an attentive reader of THE LANCET, he should have remembered in our first vol. for 1834-5, p. 465, a statement which may here be repeated for his information, and which leads to a far different conclusion to that which might be drawn from the very imperfect observations at page 160 of his work.

To prove the advantage which accrues from performing tracheotomy in cases of acute laryngitis, Mr. Ryland gives a table of 28 cases of this disease, in which 28 cases of tracheotomy was performed on six patients; four patients recovered, two died. The mortality, then, is as one in three. These cases, be it remembered, are selected from various journals, and were published by different individuals, and it is very difficult to ascertain how far they afford a fair or impartial view of the question; for, as our author justly remarks, "cases of successful operations are made known to the public with wonderful avidity."

Let us now compare this statement with that of M. Trousseau, whose cases we have selected, because they comprehend the whole series of observations which occurred, during a succession of years, in the practice of a single individual, and are, therefore, more likely to give a fair view of the subject, than if we selected them, at will, from the records of medicine.

M. Trousseau has performed the operation of tracheotomy in cases of croup, twenty-seven times (Mr. Ryland speaks only of *three* operations); eight of these patients recovered, and nineteen died; but of these nineteen we might reasonably deduct three children, who died soon after the operation, because the assistants who were left to watch them, did not know how to replace the canula in the wound. But even taking eight in twenty-seven, we have a proportion which differs but little from the proportion of cures in cases of acute laryngitis.

Again, speaking of the mortality of croup in general, Mr. Ryland shows, from the calculation of M. Double, that it amounts to about one in three children attacked. Now, the mortality in M. Trousseau's operations was nearly one in three; and hence, we think, may arise the very legitimate conclusion, that so far from being an useless operation in croup, tracheotomy reduces the mortality of children in the second and third stages of this disease (for *all* the operations of M. Trousseau were performed after the first stage, and many of them in the third), to a level with the general mortality, or even below it; for, according to Mr. Ryland (p. 132), out of 103 children attended by physicians in *latter* times, no less than forty-eight died; that is, very nearly one-half.

Since writing the above observations, we have referred to the second edition of Mr. Porter's work on "The Surgical Pathology of the Larynx," and find that the objections of Mr. Ryland, which we have just com-

batted, are taken, nearly textually, from that work. This discovery relieves us from the trouble of grappling with a new opponent; we shall, therefore, notice only one or two arguments peculiar to Mr. Porter. The Dublin surgeon asserts, "as a fact overlooked by all writers, that in all cases, no matter on what occasion, or for what cause, tracheotomy may have been performed, bronchitis is certain to follow. This circumstance is really of some importance, for all subjects are not equally capable of enduring and resisting a bronchitic affection; the very young and the very old almost always sink under it."

Now, it seems to us inexplicable why Mr. Porter makes no mention of this danger, when, speaking of this operation as suited to cases of acute cynanche laryngia, a mode of treatment, by-the-by, which he warmly advocates. On the contrary, Mr. Porter says, "Considered as a wound, it adds but little to the patient's danger;" and again (p. 92), "If, then, it can be ascertained that bronchotomy adds little, or, perhaps, nothing, to the patient's danger, there seems to be no sufficient reason why it should not be practised in the very outset of the disease." This surely looks very like favouritism, and we leave our readers to reconcile the two opinions, adding only two remarks; First, that bronchitis *does not* necessarily follow every operation of tracheotomy for croup: of this we can speak from personal experience; and, should it succeed, we assure Mr. Porter that very young children do not *almost always* sink under bronchitic affections; were this the case, few children indeed would survive the age of four or five years. In the second place, we cannot agree with Mr. Porter in thinking, that bronchotomy is a very difficult operation; we have seen it performed three times by young men of twenty to twenty-five years of age, who had never before performed any great surgical operation, and we have never seen any thing embarrassing, except the discharge of blood from the thyroid veins.

We wished to analyse the chapters on spasm of the glottis, and take some notice of that part of the volume which is devoted to wounds and injuries of the larynx, but the length to which the preceding observations have run, will preclude us from making more than two or three remarks on spasm of the glottis; or, as Dr. Ley, fancifully denominated it, after Mason Good, "Laryngismus Stridulus." Such of our readers as have met with Dr. Ley's work, will, no doubt, remember what pains he takes to prove that spasm of the glottis does not directly depend on disease within the brain; Mr. Ryland repeats these arguments, to which he has added his own, at considerable length; surely this is a waste of time and learning, for no man who has had an extensive opportunity of observing cerebral diseases in children, will say that they are even frequently accompanied by "the crowing inspiration." Cerebral excitement (a very vague term by the way) may produce this symptom, but this is quite a different thing.

Our next observation refers to the ground-work of Dr. Ley's theory, viz., that paralysis of the recurrent nerves produces paralysis of the muscles which open the glottis, and, as a consequence thereof, the fits of suffocation and crowing inspiration so very characteristic of spasm of the glottis in infants. The experiments of M. Magendie are cited by Dr. Ley in support of the idea that any serious injury to the recurrent nerves will occasion fits of suffocation, and an incapability of expanding the rima glottidis, which, sooner or later, terminate in death. We are not exactly aware to what experiments of the French physiologist Dr. Ley referred, but we are sure that his more recent experiments, most of which we have ourselves witnessed, do not lead to such a conclusion. An observation of Mr. Porter confirms this statement:—"I have lately, with the assistance of Mr. Alcock, divided the recurrent nerves of several dogs, and am satisfied that, however the operation may interfere with the voice of the animal, it has no *immediate* effect whatever on its respiration." This is precisely the conclusion at which M. Magendie arrives.

One observation more and we have done. The voluminous essay of Dr Ley on "laryngismus stridulus" has appeared to us to be more remarkable for the extent of learning which the author has displayed in its construction, than for profound observation or original research. Dr Ley seemed well acquainted with the works of German writers on diseases of children, yet he has altogether omitted to mention "thymic asthma," as described by Drs. Kopp and Hirsch, a disease which is perfectly identical

at least in symptoms, with spasm of the glottis. Mr. Ryland endeavours to supply this omission, but, unfortunately, has no other acquaintance with thymic asthma than what was contained in an abstract, given by Dr. Montgomery, in the "Dublin Journal" for July, 1836. Had Mr. Ryland made proper research on the subject, he would have found Hirsch's essay, nearly in full, in our Vol. I., 1835-36, page 301, and a little further examination would have prevented him from saying (p. 196), that "we are not informed by any observers of this disease, in what condition the thoracic and cervical absorbent glands were found." In a case which we have published from Dr. Alkin, of Bergheim, "nearly all the bronchial glands are described as being hardened, tubercular, and enlarged. One, placed at the bifurcation of the trachea, was as large as a hen's egg, and of cartilaginous consistency. Both bronchial tubes were so compressed and flattened by it, that scarcely one-third of their calibre remained free." The author, it is true, omits mentioning the condition of the eighth pair of nerves, but we possess more than one case of tubercular affection in children, where the pneumogastric has been completely flattened by the pressure of tubercles, without giving rise to any remarkable disturbance of the function of respiration.

The lengthened notice which we have taken of Mr. Ryland's work, proves that we hold it in considerable estimation, for it is not often that we meet with a volume which deserves serious criticism. We are sure that he will himself receive our remarks on its contents in good part.

The treatise on the diseases and injuries of the larynx and trachea, affords a very complete view of what is known upon a most interesting and important subject, and we now conclude by a general and sincere recommendation of the work to our readers.

THE LANCET.

London, Saturday, July 29, 1837.

We have frequently condoled with our friends, the students, on the unblushing manner in which their pockets are picked by the medical magnates of this custom-ridden land; but, fortunately for those who suffer, every object has two sides, every fact presents two faces, and if the student but turn his eyes to both, and observe what is going on at the other side, he will soon discover, to his no small comfort and amusement, that the above mentioned magnates are just as busily employed in the unprofitable labour of stealing the products of each other's brains, as in the profitable occupation of emptying their pupil's purses.

Priority! What a magic word;—as dear to the *soi-disant* discoverer, as is honour to the maiden, glory to the soldier, or freedom to the patriot's heart. A celebrated historian has remarked, that of all civil commotions, the most sanguinary and inveterate are those which arise in consequence of religious dissensions. Even thus is it with the feuds of "discoverers." *Si parvis componere magna.* Priority is a hidden treasure, suddenly brought to light, upon which every adventurer falls, each determined to carry off, at least a portion of, the booty, if he fail to appropriate the whole. Hence, the moment that a new fact is announced,—a fresh discovery in medical science is proclaimed, and a troop of foragers are on the *qui vive*, like passengers in a street, when the cry of "pick-pocket!" "stop-thief!" is raised. The more prudent consult their memories, or their note-books, and there find record, at all events of "the germ" of the alleged discovery, while some literary jackall discharges from the vent-hole of his empty noddle the only idea that was ever contained in that cavity and, with a pertinacity which is peculiar to his class, insists on its identity with

the fact announced, declaring that it was familiar to him from his childhood, or handed down to him, perhaps, from a long line of illustrious ancestors. The quarrel once seriously aroused, the partizans of each claimant forthwith rally round their principal, and the battle becomes general. Hard words are interchanged, and men who have hitherto been as "honourable" as BRUTUS, suddenly find themselves arraigned as thieves. The learned are convicted of profound ignorance; men of veracity are shewn to be false witnesses; social order is sacrificed to personal vanity; and friendship changes into hatred, and esteem into contempt.

The extent to which this evil has grown can only be fully appreciated by the conductors of the periodical press, or by those who follow with attention the debates of our medical and philosophical societies. Editors' tables are continually laden with letters from gentlemen, who would enforce their claim to "priority" in some discovery. One claims the invention of the instrument for clearing the stomach; a second appropriates to himself the honour of originating the most approved method for clearing out the rectum. Numerous Macadamizers of urinary calculi, have proposed the best plan; one gentleman who slits urethras by wholesale, is attacked by another who has destroyed more patients by the same method than the first ever treated at all. Dr. A. gave a *pilula rara*, in 1837. Dr. B. is sure to have administered the same identical pill twenty years ago. Even the fanciful creations of the human mind are alleged to have been dreamed by dreamers of the olden time, and the ingenious authors of *reflex and complex* functions, are accused of plundering Celsus, Galen, and the ancients.

To give an example, some few years ago a respectable inventor, (for some wise purpose, assuredly), proposed (*horrendum nefas*) hermetically closing up the secret parts of women: no sooner was this made known, than up started a host of claimants to priority in this laudable undertaking; Mr. F. had done the same thing several years before; Mr. P. had employed the same contrivance from time immemorial; rudiments of the practice were to be found in the Latin, Arabic, and Greek authors, and we verily believe that, had it not been for the lack of documents and the lapse of time, certain people would have settled the question of priority by tracing the invention up even to the patriarchal ADAM.

But a truce to pleasantry and burlesque, for although these little disputes and rivalries are more calculated to excite laughter than to attract serious attention, they tend to show the weakness of human nature in too glaring a light, and, while they direct the mind from the pursuit of solid good, create divisions and foster feelings which are wholly unworthy of the true and enlightened followers of science. The common result of these questions of "priority" is, to bring forward, for the public amusement, the *amour propre* and the irritability of authors, and to occupy in the periodical journals a space which might be much better employed. Our present observations are elicited by observing a tendency to revive certain questions of "priority" which we thought had long since been settled. However unwilling to re-open old sores, every other consideration must yield to our love for "truth," and if we do devote any time to a critical examination of fact and dates, it shall be done seriously, without favour and without fear.

THE MIGRATORY DOCTORS AT CHELTENHAM.

"On Wednesday, the 18th inst., the fifth anniversary of the Provincial Medical Association is to be held at Cheltenham, on which occasion there is to be the usual glorification of certain DOCTORS, who have so contrived as to induce some one hundred or one hundred and fifty surgeons in general practice to follow the said DOCTORS, from place to place, in humble admiration of the superior skill, learning, and reputation, which those profound DOCTORS possess."—LANCET, July 15.

"Instead of accomplishing, or even attempting to accomplish, any great object for the profession or the community, the Society is engaged in perfecting a series of annual exhibitions, which, with one exception, appear to be designed with no other object than that of proving that surgeons in general practice are an inferior class of men in this country, who merit no higher honour than that of being invited to follow a few undistinguished DOCTORS from town to town, where they may sound the praises of those DOCTORS in humble but earnest strains of adulation."—*Ibid.*

The following report of the proceedings of the Provincial Association at Cheltenham, on the occasion alluded to in the foregoing paragraphs, supplies the fifth verification (this being the fifth anniversary of the Association) of our declarations respecting the objects of this club. The report is taken, *verbatim* from the *Bath and Cheltenham Gazette* of July 25, and has probably been drawn up, or specially revised for publication, by some one of the "eminent" and "illustrious" officers of the Society. To the deluded, and, by this time, disgusted "followers" of the DOCTORS, not one word of comment on the candid account need be offered. It is sufficient to point to the fact, that in the report not one surgeon in general practice is mentioned as having been allowed to take part in the proceedings, or even to sit down to table among the "eminent" and "illustrious" Doctors who were followed to Cheltenham on this occasion.

"The annual meetings of the Provincial Medical and Surgical Association have been held in Cheltenham during the past week.

"On Tuesday evening, the first meeting of the Council took place, to consider the subject of the New Poor Law, in respect to its medical provisions, and their operation with respect to the sick poor, and to enter upon such measures as might be deemed advisable, preliminary to the general meetings about to take place.

"At eight o'clock, on Wednesday evening, the first General Meeting of the Association took place, in the large room of the Literary Institution, which was attended by about two hundred gentlemen, mostly members of the medical profession.*

"The Annual Report of the Society was read, from which, it appeared that the affairs of the Association were in a most prosperous and flourishing condition.

"DOCTOR HOLME, of Manchester, resigned his office of President, and moved that DOCTOR BOISRAGON, as president elect, should take the chair. This having been done,

"DOCTOR BOISRAGON delivered an inaugural address, which was loudly applauded throughout.

"After the President's address, the Report of the Committee on the Poor Law * was brought up, and led to a very animated discussion on the subject of its medical provisions and enactments; and in which, DOCTOR HASTINGS, DOCTOR BARLOW (of Bath), DOCTOR CONOLLY (of Warwick), and other members, took part.

"Several resolutions were *proposed and carried*, all having reference to the special objects of the Association. Among others, was one, appointing Bath as the place of next year's meeting, and DOCTOR BARLOW, of that city, as President, DOCTOR MALDEN, of Worcester, being named for the delivery of the Annual Address upon that occasion.

"These, and other similar matters, occupied the meeting until nearly half-past eleven o'clock, when the members separated for the night.

"On Thursday morning, at twelve o'clock, the members of the Association proceeded to the Montpelier Rotunda, where the principal general meeting was appointed to be held.

"The President having taken the chair, DOCTOR BARLOW submitted to the meeting an Address of Congratulation from the Association to the Queen, upon her accession to the throne, which was unanimously adopted, and Sir ASTLEY COOPER, DOCTOR BOISRAGON, DOCTOR HASTINGS, DOCTOR KIDD, and DOCTOR JAMES CLARK, with the mover and seconder of the Address, DOCTOR BARLOW and DOCTOR CONOLLY, were appointed a deputation to present the same to her Majesty.

"DOCTOR J. L. BARDSLEY, of Manchester, was then called upon to deliver the Annual Retrospective Address, in which was given an excellent, able, and masterly view of the various improvements recently effected in medical science, classed under their respective heads.

"After the delivery of this important and highly interesting document was concluded, and a vote of thanks had been passed to DOCTOR BARDSLEY, the meeting proceeded to dispose of a number of other resolutions, all having immediate relation to the peculiar business of the Association, amongst which were votes of thanks to the officers of the various Committees, &c., of the past year, and to the proprietors of the Spas, and other public establishments of Cheltenham, for the accommodation afforded the Association.

"These matters having been all gone

* "Mostly," probably, means a hundred and ten or twelve, including residents in Cheltenham.—ED. L.

* See page 672 of the present number of THE LANCET.—ED. L.

through, the president vacated the chair, and a vote of thanks having been passed to him, the business of the Association was officially announced as terminated.

"The dinner at the Assembly Rooms, in the evening, proved a splendid affair. One hundred and thirty members of the Association, and their friends, sat down to table, and partook of a most abundant and elegant banquet. Coffee was supplied to the company in the front card-room, and a most delightful conversazione brought the festivities of the evening to a close, at half-past 11 o'clock. Among the eminent individuals present were Doctor Bardsley (of Leeds), Doctor Marshall Hall, Doctor Webster, and Doctor Costello, of London; Doctor Hastings, of Worcester; Doctor Barlow, of Bath; Doctor Forbes, of Chichester; Doctor Sigmond, of Bristol; Doctor Ring, of Reading; Doctor Hodgson, of Birmingham; Mr. Crosse, of Norwich; with a long list of others '*scarce less illustrious.*'"

SECOND REPORT OF THE

POOR LAW COMMITTEE

OF THE

PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION.

(*Read at Cheltenham, July* 20, 1837.)

The Poor Law Committee having been requested, once more, to direct their attention to the present state of the question of parochial medical relief, submit the result of their deliberations to this meeting of the Association.

Seeing that the evils detailed in the report of last year continue unabated, notwithstanding the steps taken by this Association, and by the profession at large, your Committee deem it highly important, at the present juncture, that energetic measures should be pursued to urge this matter upon the attention of the legislature and the public, until a parochial or national system of medical relief be settled upon a basis equally humane to the poor, and just to the medical practitioners.

With a view effectively to make known the opinions and feelings of this Association, your Committee recommend that personal and written communications be made, by members of the Association, in every locality, to their respective representatives in Parliament; also that petitions be presented immediately on the assembling of Parliament, praying for a *special*, full, and impartial inquiry into the subject of medical relief for the poor, and for the production of official returns of all medical contracts made under the new law, of the number of practitioners appointed to the care of the sick poor, compared with those under the former system; of the extent of districts entrusted to medical officers; of the amount of their salaries; the mode of their appointment; the number of patients attended and visits performed by each medical officer; lastly, that a plan for an amended system be prepared, and placed in the hands of some influential members of the legislature, who might be disposed and able to undertake the management of the question in both Houses of Parliament.

If, after the adoption of these measures, there be not a fair prospect of redress by Parliament, it is the opinion of your Committee that members of this Association ought no longer to sanction a system alike degrading to themselves, and cruel and delusive to the sick poor; to use the words of the last report, they ought "firmly to decline any participation in the medical appointments of the new Poor Law."

If the profession had been true to itself, and if medical men had in private acted up to those declarations which they have so strenuously made in public, the matter would have long ago been equitably arranged, but whilst unprofessional, mean, and selfish conduct, in so many instances, continues to disgrace our body, we cannot wonder that the authorities should take advantage of such delinquencies to effect their ill-judged projects of economy.

[Here follows the plan to be submitted to Parliament, which Mr. Rumsey has informed us shall be forwarded for publication next week.]

ELECTION OF MEMBERS OF PARLIAMENT

FOR THE

METROPOLITAN DISTRICT OF FINSBURY.

On Monday last, July 24, 1837, the nomination of candidates to represent the borough of Finsbury in the ensuing Parliament, took place on Islington Green, when Mr. T. Duncombe was proposed by Mr. Armstrong, and seconded by Mr. Hewitt; Mr. Wakley was proposed by Mr. H. Smith, and seconded by Mr. Cant; and Mr. Dudley Montague Perceval was proposed by Mr. Blanshard, and seconded by Mr. Clifton. On Tuesday, the 25th, the polling took place at the various district booths, and on Wednesday, the 26th, the state of the poll was announced, as follows, by the returning officer, Mr. Hardwicke, at the hustings, at Islington:—

For Mr. Wakley, Reformer, .	4957
For Mr. Duncombe, Reformer,	4895
For Mr. Perceval, Tory, . . .	2470
Majority for Mr. Wakley,	2487
Majority for Mr. Duncombe,	2425

Whereupon Mr. Wakley and Mr. Duncombe were declared to be duly elected.